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JULY 1994 Vol.12 No.5 £2.95 Hfl 14.50

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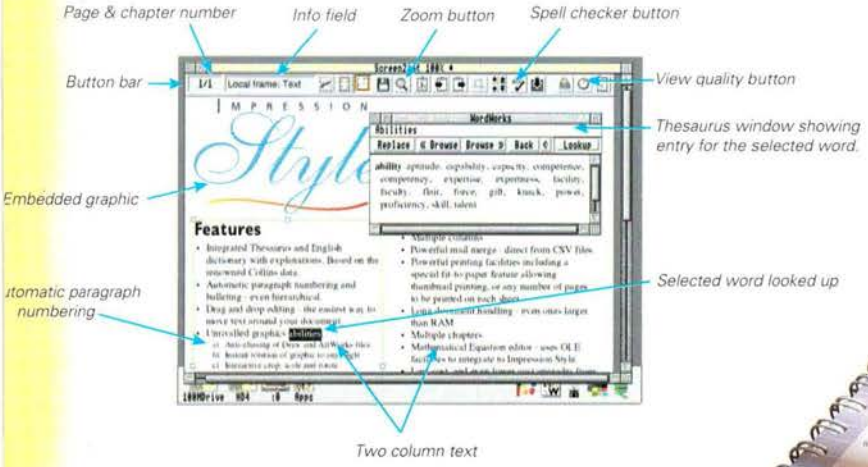
IMPRESSION Style

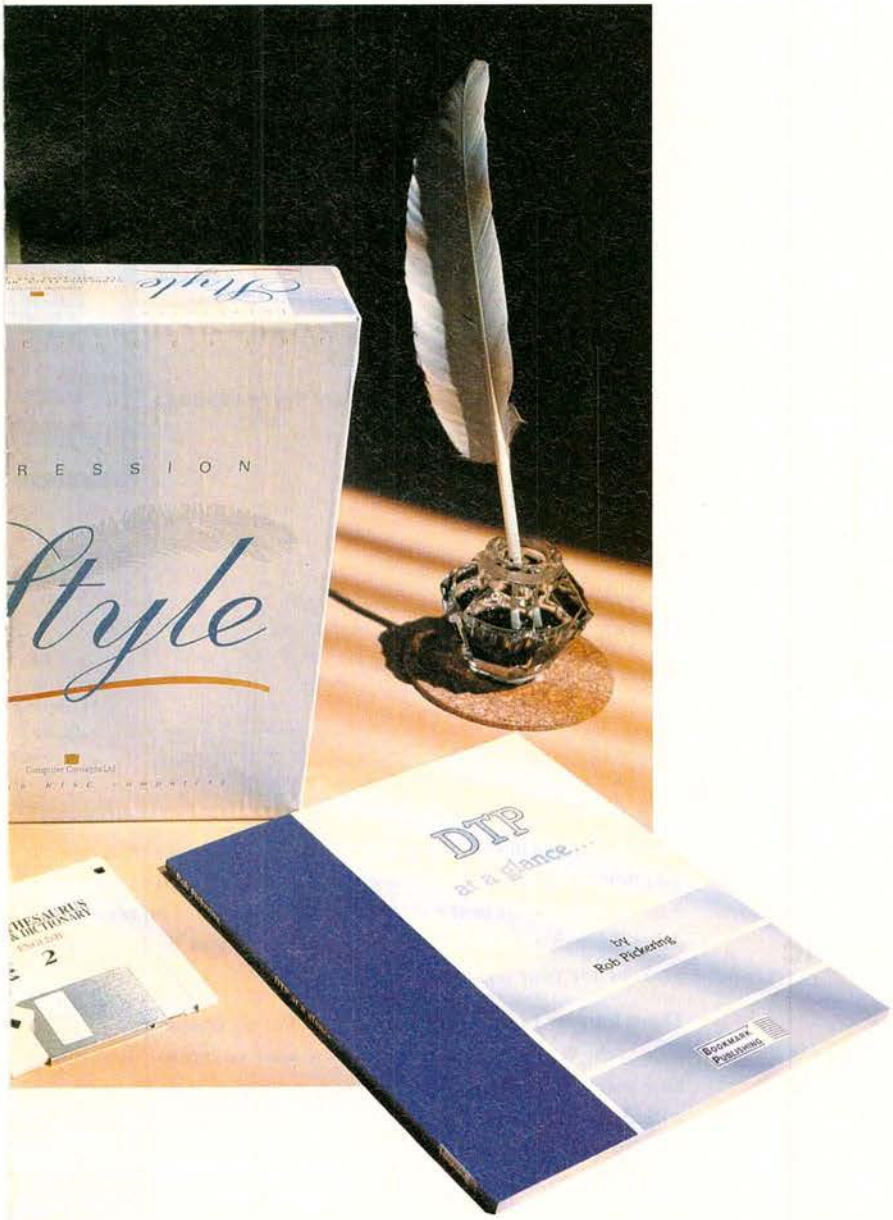
Impression Style is the newest word processor member of the Impression family, and the most comprehensive and powerful version so far released. Over the last few years Impression has become the most successful 32-bit Acorn software application and while Impression's DTP capabilities have been renowned, the fact is that most users use it as their day to day word processor. Impression Style is a major update, with special attention paid towards improving the word processing abilities still further, and making it even easier to use than before. So, for example, it now includes automatic paragraph numbering and



two sorts of on-line help amongst dozens of other improvements.

For those with technical writing needs it includes a mathematical equation editing utility and table building utility. For writers it includes what Archimedes World called "the superb WordWorks dictionary and thesaurus package." Other features that help make Impression Style a better text processor include automatic abbreviation expansion - one of the greatest time saving features available, drag and drop editing, an optional, configurable tool bar, along with firm favourites such as spell check as you type.

In a *modern* world of computer software we have *created* a package to leave you with a lasting *impression*



Archimedes World summed it up by calling it "a document processor of immeasurable power and sophistication."

And for those who need complete control over the page layout and appearance, Archimedes World and Acorn User magazines both had exactly the same conclusions - "Style itself is currently the best DTP package available."

"Importing foreign formats is one thing Style handles better than any other package I have encountered."

"The manuals are brilliant and offer full details on the use of the software. In fact, these manuals are so good, it seems unlikely that there will be much need for supplemental books from third party publishers."

"At the end of the day, Impression Style is a superb product for the relatively small asking price."

***Archimedes World*, Feb 1994**

"Impression Style represents ridiculous value for money."

***Acorn User*, Jan 1994**

"There is no other product on the Acorn platform to touch this, whether at the £100 asking price point or at £500. Every writer should own a copy."

***Archimedes World*, Feb 1994**

If you use your computer for word processing, then shouldn't you make sure that you use the best tools available?

Impression Style upgrade options

Upgrade from	Cost (ex VAT)	Total cost inc p&p and VAT
Impression Junior	£29 + VAT	£37.60
Impression II	£29 + VAT	£37.60
Other word processors †	£70 + VAT	£82.25

† Other word processors include: Pipedream, Wordz, Ovation, First Word Plus TechWriter, EasiWriter, StartWrite and Acorn Advance. To upgrade simply return your key / master / N°1 disc with payment to Computer Concepts.

Impression Style RRP £99 + VAT (£116.32 inc)

Refer to table for special upgrade offers.

2Mbytes RAM recommended

Low cost educational site licences available.

Full specification available on request.

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The fact is, you appreciate value-for-money software that's easy to use, powerful, perfect for young minds – and helps you make the most of your hours in the classroom. But you've got no time to delve through reams of advertising blurb simply to find the right package for your needs.

Thankfully, at Longman Logotron we offer an alternative approach. We know how good our software is, but we also know how precious your time is. So we're not going to inundate you with detailed information. Instead, we suggest you have a word with any of your colleagues or friends who've used one of our packages before. If they don't convince you to choose Longman Logotron, no amount of hyperbole on a page will.

For a **FREE CATALOGUE** showing our comprehensive range of Acorn educational software, please call our **HELPLINE** on **0223 425558** anytime between 9am and 5.30pm (Answerphone evenings and weekends).

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LOGOTRON

LONGMAN LOGOTRON 124 CAMBRIDGE SCIENCE PARK MILTON ROAD CAMBRIDGE CB4 4ZS

August issue on sale 21st July

Sound and Vision

WHICH monitor is the best for what you want? We examine the market for what's good and what's low cost. Plus the sound of computers, new products that make handling noises even easier.

Starting on Page 27.

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Steve Turnbull looks at the implications of the latest information revolution.

News 17
All the latest news of products and events taking place in the fast changing world of the Acorn computer.

TechForum 59
Are you an expert programmer? Our hints and tips series is just for you with ideas and algorithms to help you work.

Graphics 60
Mike Goldberg seems to be in apocalyptic mood with seven ways to end it all.

Public Domain 63
Teri Paul is back again with her pick of public domain and shareware programs to enhance your computer.

Mad Hatter 66
Our adventure game wizard continues to guide you through the Pawn plus lots on Elite and Haunted House.

Body Building 75
Have you ever wondered how vending machines recognise coins? Well Mike Cook shows you one way.

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Our technical editor opens his mail and shares the secrets behind some of those tricky hardware problems.

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32-bit Subscribers 8
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BBC Disk 11
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Your chance to win one of 100 prizes worth over £3,000 in this easy to enter contest.

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What makes RISC OS computers special? At the University of the West of England, they know.

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All systems go as we look at The Time Machine, the latest adventure for 32-bit Acorn machines.

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Most of the editorial and adverts in this magazine were produced with ArtWorks and Impression from Computer Concepts

THE MEGADISK

Britain's best Acorn cover disk contains hours of fun and a host of useful utilities linked to our editorial features to make the magazine come alive on your desktop.

Full details about the packed Megadisk – see Page 6.

- **Parlez vous Français?**
  Now you can try with Lexique and 10/10 French
- **Escher's reptiles in 3D**
  Amazing fly round this superb creation
- **The End is Nigh**
  Destroy the world in interesting ways
- **TechForum**
  More fixes for your software

Reader reply service— See page 90

Do you want more information about available products? Check out our special reader reply service on Page 90 so you can find out more about the software and hardware being advertised in Acorn Computing.

Subscribe now! — See page 40

SUBSCRIBE to *Acorn Computing* and you'll get an amazing value-for-money deal that beats all our rivals: Not only do you get a whole years-worth of issues for LESS than any other Acorn magazine, 32-bit owners get TWO disks every month.

See Page 40 for details of this unbelievable offer.

If you have a BBC Micro, *Acorn Computing* is the only magazine that still supports you. Every month we have complete programs written specially for you and your computer.

To subscribe turn to Page 40 now.

GET YOUR NEWSAGENT TO RESERVE YOUR COPY NOW – SEE PAGE 58
AVAILABLE AT W.H. SMITH AND ALL GOOD NEWSAGENTS

The MegaDisk

What's on this month

- Lexique
- Escher Reptiles
- 32-bit Graphics
- Body Building
- TechForum
- 10/10 French

Lexique – A word in votre oreille

Lexique is more than just a language dictionary, it contains over 2,500 entries consisting of corresponding French and English words and phrases, with grammatical help and typical usage within context.

Intended primarily for use at GCSE level, Lexique has all entries split in the main GCSE topic headings, making it possible to use smaller groups of words appropriate to the area being covered. You can even add entries to Lexique, building up your own personal dictionary.

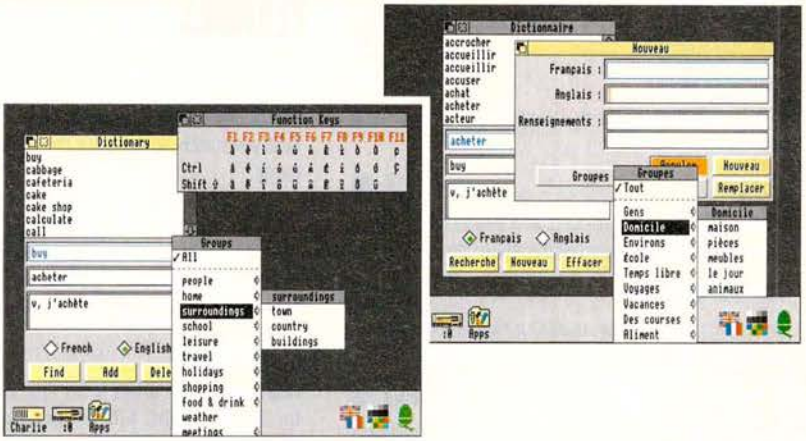
When the main window is open you will have the opportunity, at any time, to swap the display between French (Français) and English (Anglais) by clicking Select on the appropriate icon. This means that all text associated with Lexique will appear in the selected language.

Some of the letters of the French alphabet are not on the keyboard and therefore become difficult to type in. To get round this click Select on the Function keys (Touches de fonction) option on the icon bar menu. This will open a window displaying all the necessary letters you are likely to need.

To type any of the letters in, simply click Select over the one you want or press the appropriate function key using the Control or Shift keys as shown.

You may find it necessary to add words of your own or even add a word twice, but with two meanings. To do this click Select on the Add (Nouveau) icon in the main window – this will open the add window.

To add a new word simply click Select on the Clear (Dégager) icon to clear the information boxes then type in the new word you want to add. To add the same word with a different meaning, enter the word in the icon with the blue border the same and the remaining information for the second meaning.



You also need to set the topic heading(s) under which the word appears. To do this click menu over the Select Groups (Groupes) icon and using Select again tick the relevant groups.

Now click Select on the Add (Nouveau) icon to add the word to the dictionary. Further information about deleting and changing words is contained in the program's help file.

One of the main features of Lexique is the ability to select smaller groups of topic-based words. Lexique operates in exactly the same way regardless of the number of groups selected, and there is no limit on which groups you can select.

The groups are aimed at covering the main areas such as people, home, travel and so on. Most of the groups have sub-groups which means most words can easily be related to a particular group.

By clicking Menu over the main window you can set which of the groups and sub-groups you want to use. When Lexique is first loaded All (Tout) will be selected. Try clicking select on People (Gens) and see what happens to the list of words in the main window.

If you add, delete or change a word in Lexique an asterisk will appear in the title bar of the main window. This is a reminder that you will need to save these changes so they're not lost when you quit.

To save any changes click menu over the Lexique icon on the icon bar then click Select on Save (Sauver) – this will save the changes and remove the * from the title bar. If you forget to save and try to quit Lexique you will be asked if you want to save or not.

This version of Lexique is fully functioning but time-limited. For a full version with no time restriction, which costs £20 plus VAT (add £1 p&p in the UK), contact: Fabis Computing, 95 Fabis Close, Swadlincote, Derbyshire DE11 9SL. Tel: 0283 552761.

Getting started with the MegaDisk

THE programs on this disk are stored in a highly compressed format which sometimes enables as much as 1.6Mb of programs and data to be stored on a 800k floppy disk

The procedure for running the programs is very straightforward and does not require learning any special methods or techniques.

Switch on your Acorn micro, put the disk in the drive and click the drive icon. Now double-click !ACmenu – there's a short pause while it scans the archive then it displays a window of the contents. You can treat this new window like any other one for viewing disk contents, and run programs and open directories by double-clicking them.

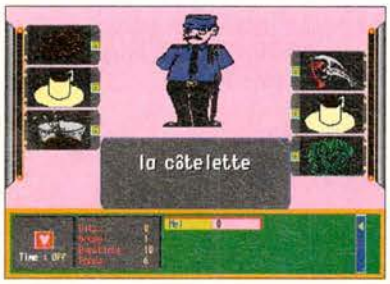
Large programs must be unpacked by dragging them on to a separate disk before being run. Some may have an !Install program that will do it for you.

We recommend that you always read the !ReadMe files or access the help information via the Help button.

10/10 French: Getting started

In this demonstration version of 10/10 French you can try Grades 1 and 6 of The Cop and look at the Achievement Chart – select *Player Information*. The chart shows the areas of French that are covered by the 36 challenges you'll find in the six educational games of the full version.

Note that before you can move to a higher grade, you must achieve 50 per cent or more on the current one. So before you can try Grade 6 on the demo you must score at least 50 per cent on Grade 1 – turn the appropriate box yellow on the Achievement Chart.



The Parent Teacher guide (supplied with the full version) gives details of how you can customise the package with the starting grade set higher. This is one of the many features that you can customise in the full package to ensure that it suits the needs of your child.

You must enter your name before results are entered on to the Achievement Chart. Once this is done, a black box indicates that a grade has not been tried, a red one means under 50 per cent, yellow 50 per cent to 99 per cent and a green box means 100 per cent.

A parent or teacher can leave a child playing 10/10 and later discover what the child has tried and how well he or she has performed. The full version has facilities for 64 classes with up to 64 pupils in each.

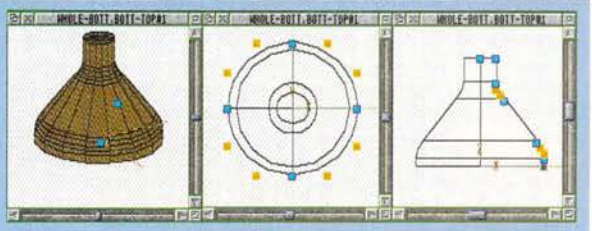
Escher: Reptiles in three dimensions

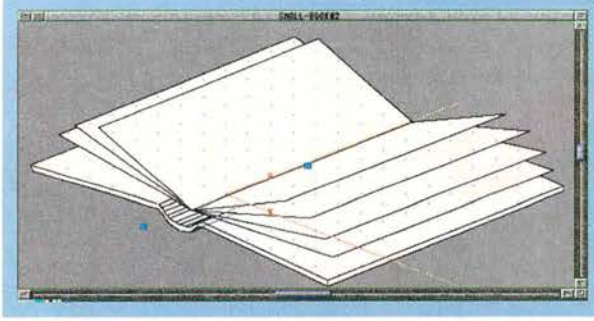
In the March 1994 issue *Acorn Computing* covered the production of Escher's interlocking reptiles using draw files. On the MegaDisk this issue there's an animated fly around a 3D version of the original Escher drawing.

To create the original image I used Euclid, a 3D drawing package – much in need of updating, in my opinion. I started with the large open book made as a *cuboid* with the end elevation of the pages drawn, and then extruded to the required depth.

The cover was made in the same manner and then the two parts were grouped together. The smaller open book, the closed book and the set square were produced in the same way. The pentagonal ball is included as a sample file with Euclid, so I copied this over and gave it colour according to how I thought it should look.

Colour was quite a problem as the original image was drawn in black and white. I presumed that nothing would be plastic and colours would be muted semi-natural ones. Therefore I set up the model with most components having a reflection index similar to painted wood.





The glass, vase, bottlekeg, plantpot and lime were made as circles of revolution. The cylinder tool was selected and a circle drawn in plan, then the cross section drawn in the front view. The program rotated this cross-section around the plan (circular) view to produce the shape.

The plant was a triangular leaf section, extruded a number of times to get the correct shape. This was copied to give a complete plant.

I did not bother with the rubber, rubber band or matches, as a test I did with these gave poor results with odd reflections when ray-traced. The cigarette papers are two extruded rectangles top and bottom, with cutouts in them and a light grey filling.

Finally I drew the lizards. I imported a cut-down version of the 'Reptiles' file from the March issue into the drawing, giving the lines a slight thickness. I did ➤

10 OUT OF 10 SPECIAL OFFER

If you want to upgrade to the full version of French, 10 out of 10 Educational Systems are making a special offer to all *Acorn Computing* readers.

You can get a free copy when you order any other 10 out of 10 product. Just fill in this coupon and send it off with your order.

I would like to take advantage of the 10 out of 10 Acorn Computing Special Offer. I understand that this offer cannot run concurrently with any other.

Name .....

Address .....

.....

.....Postcode .....

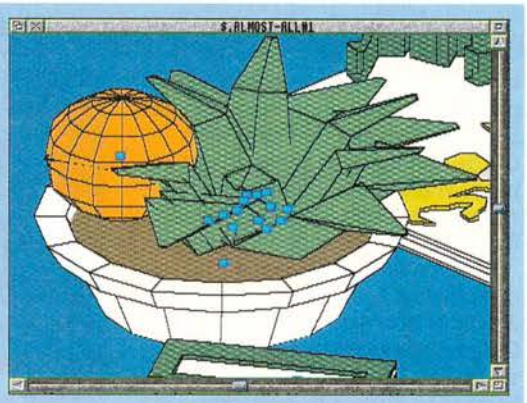
SEND TO: 10 out of 10 Educational Systems, 1 Percy Street, Sheffield S3 8AU

FAULTY DISK?

If your cover disk or 32-bit subscription disk has a physical fault – doughnut won't rotate in the sleeve, disk errors and so on – please return it for replacement to:

PC Wise Ltd
Dowlais Top
Business Park
Dowlais
Merthyr Tydfil
Mid Glamorgan
CF48 2YY

If there seems to be a fault with one of the programs please contact us by post describing your machine set- up and exactly what happens when you run the program.

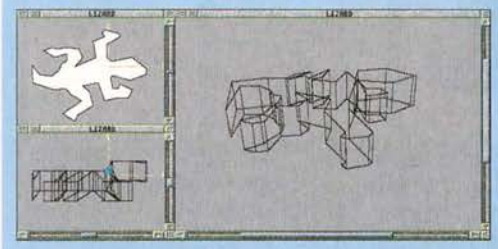


not put in the hexagonal grid as this would have been almost invisible in the final film. One lizard shape was extruded into a thick lizard, then individual points edited to raise the head and lower the legs. I could have made a more complex lizard with animations but the file was getting unwieldy and I decided that to speed things up I would make the lizard simple.

The individual object files were scaled into one master still life and placed on a large blue hexagonal base. A camera position was picked and the lighting set up as a single general light placed above and to the right of the camera view. The ambient light in the model was reduced to cut down reflections, and the background colour set to blue.

The Mogul package was used to rotate the whole model with the camera kept steady. The Model file and a Mogul movement file were then dropped into ArcLight which raytraced each frame and compressed the film.

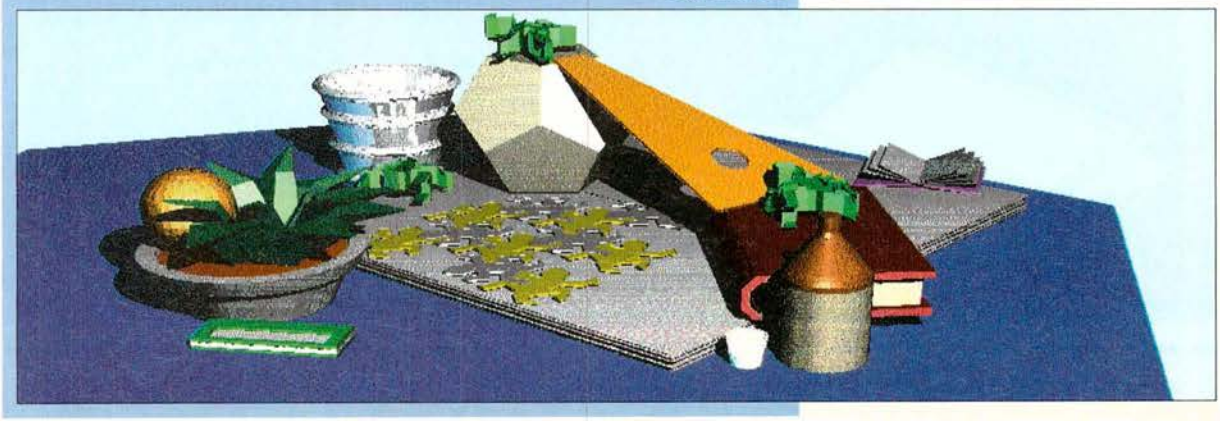
This took 14 hours on an A5000 33MHz and produced a final film of 1750k with 80 frames at 320 x 256 pixels in Mode 15. The Megadisk version is much smaller.



The last stage was to produce a very high resolution image for publishing purposes. I set the ArcLight program to 3000 x 1500 pixels using mode 15. The finished image dithered and then loaded into Draw, scaled to fit A4 and had my logo and a small graphic of the Reptile shape added.

If you would like a copy of the full version of the animation it is available as Licenceware from the Datafile. Send £3 for a 1.6Mb disk or £4 for two 800k disks with the file split between them, to the Datafile, 71 Anson Road, Locking, Weston-super-Mare, Avon BS24 7DQ.

A J Booker



THIS month our free 32-bit subscription disk includes:

Caves: This PD demo version of the sideways scrolling shoot-'em-up is similar to the first level of the actual game, although some extra alien flight paths and so on have been included.

It is compatible with all Acorn-standard joystick interfaces, the extra joystick application is for use with the Leading Edge joystick interface.

The Keys

Z	Left
X	Right
'	Up
/	Down
Return	Fire
Esc	Return To Desktop

BBC Disk

A full copy of the BBC subscription disk. Transfer it to a BBC disk and then run on your 8-bit machine.

Public domain: Even more software for you to use

A HOST of programs including a selection of the ones covered in this month's public domain column:

- Daleks3
- Kinetic
- PTab
- Status
- Type
- APTrak

Programs from the magazine

In another of Mike Goldberg's series on graphics and sprite handling on RISC OS machines, he covers the end of the world in seven hopefully unlikely ways.

TechForum covers the solution to more problems that Acorn have supplied programmers with and looks at improving the C compiler's help handling. Body Building looks at coin recognition and supplies two programs that will operate with the hardware Mike Cook describes.

The *10 out of 10* Series

Rapidly becoming Britain's favourite choice in educational software

Try it FREE!

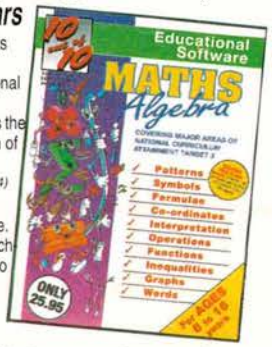
Maths (Algebra)

For children 6 to 16 years

"*10 out of 10* Maths (Algebra) meets all the criteria for an outstanding educational program and fully deserves first place as the Edutainment Program of the year. Ten out of Ten for it!"
– *Amiga User International (January '94)*

THE BEST EDUCATIONAL GAME of 1993

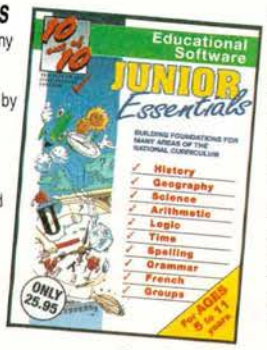
"This pack is very good. It is well suited to both home and school use. It encourages good skills, like searching for patterns and estimating. Also it's available on approval, so what are you waiting for?"
– *Acorn Computing (December '93)*



Junior Essentials

For children 5 to 11 years

A truly flexible package covering many topics essential for building a good educational foundation. The areas covered have been carefully chosen by a team of experts and come from several subjects and levels of the National Curriculum.
The child's progress in these areas is constantly monitored and recorded and parents or teachers can easily discover where a child needs help. As with all the *10 out of 10* series, further motivation to play the games and learn more is added in the form of High Score Tables.



Dinosaurs

For all ages

This package is the fun way to learn the facts about dinosaurs. The six games all have superb digitised graphics to make a whole area of history – dinosaurs – come alive. If you came face to face with a tyrannosaurus would you run away? Or are you safe because it's a vegetarian and wouldn't eat you? This, together with 100s of other interesting facts, can be discovered from this enthralling package. The six games – all with single and multi-player options – are educational fun for everyone.

Maths (Number)

For children 6 to 16 years

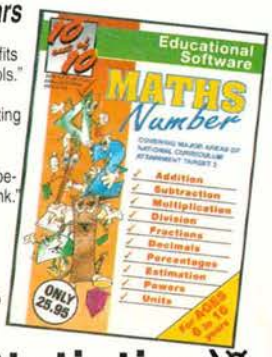
"Well thought out to offer real benefits to children studying in British schools."
– *PC Plus (July '93)*

"Educationally worthwhile and exciting to play – a rare combination."
– *Archimedes World (December '92).*

"Unique in home-based programs because of the National Curriculum link."
– *The Micro User (September '92)*

"Excellent for reinforcing specific mathematics knowledge."
– *Junior Education (July '93)*

"The *10 out of 10* Series lives up to its name." – *PC Home (August '93)*



Early Essentials

For children under 7 years

"Outstanding. All of the activities are not only very enjoyable but they're well thought through. It's one of the best multi-purpose infant packages I've seen in a long while. If you have young kids get it for the home. If you're a teacher, hammer on the headteacher's door and beg for money to buy a copy."
– *Archimedes World (July '93)*

"At just £25.95 you'll be hard pressed to find anything which even comes close to Early Essentials."
– *Micro Computer Mart (Sept. '93)*

English

For children 6 to 16 years

"Everything being done is relevant to the player's education. An invaluable curriculum experience, plenty of fun, lots of variety."
– *PC Home (November '93)*

"Guaranteed to sustain the attention of even reluctant learners."
– *RISC User (January/February '93)*

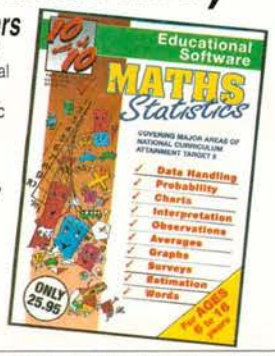
"Most importantly, as the games are fun, children can't help but learn."
– *Acorn Computing (March '93)*

"Allows progression from Junior school age right up to GCSE level."
– *Amiga User International (Sept. '93)*

Maths (Statistics)¤

For children 6 to 16 years

Attainment Target 5 of the National Curriculum is Data Handling – a vital area of Mathematics. *10 out of 10* Maths (Statistics) covers 36 specific topics from that subject.
In this package, recording animal sightings in an animated pond or rolling dice are just two of the many challenges that children will relish as they learn about statistics. And can graph drawing be a game? It becomes arcade action as bricks and bombs are dropped onto the charts. This is a really enjoyable way to learn about statistics.



French¤

For children 6 to 16 years

This suite of six educational games will give fun and motivation to all children learning French. The package is designed with the Modern Languages National Curriculum firmly in mind and contains many challenges to reinforce facts stated in Attainment Targets 3 and 4.

10 out of 10 French is essential for children on Key stages 3 and 4, but the numerous parent and teacher customisation options make the software suitable for all children – however young – who are learning the French language.

Driving Test¤

For all drivers and learners

Whether you're a novice learner or an advanced expert, there's plenty you can learn from this package. There are thousands of built-in questions and you can choose whether you want to answer them directly or add to the fun by trying them within games.
The six games have been designed to be fun for all adults and include strategy, mental agility, coordination and more. And, if you think you are up to it, you can "*take the test*" – a challenge covering many areas of the Driving Test.

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☎ 0742 780370 / 769950

Site and Network Licences are available – please ring for details.
* The free trial may not be used in conjunction with any other offer.

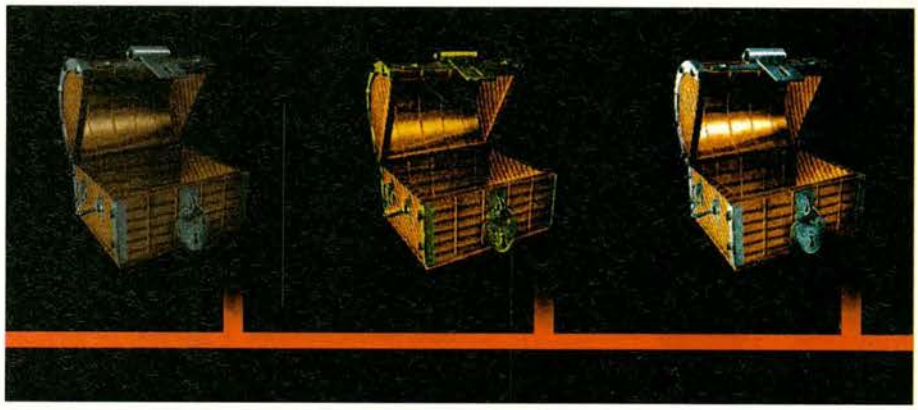
The *10 out of 10* Series is available from all good computer software suppliers

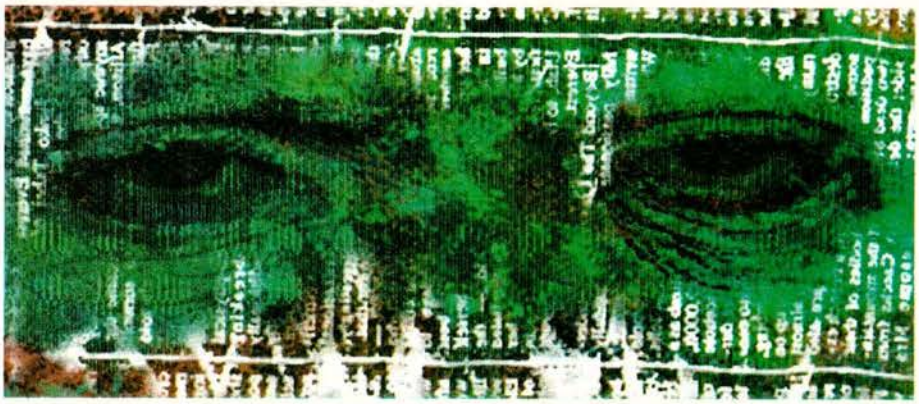
THE WAIT IS OVER !!!

DA's Picture is the paint/image retouching package with a treasure trove of features, from Digital Arts of Germany.

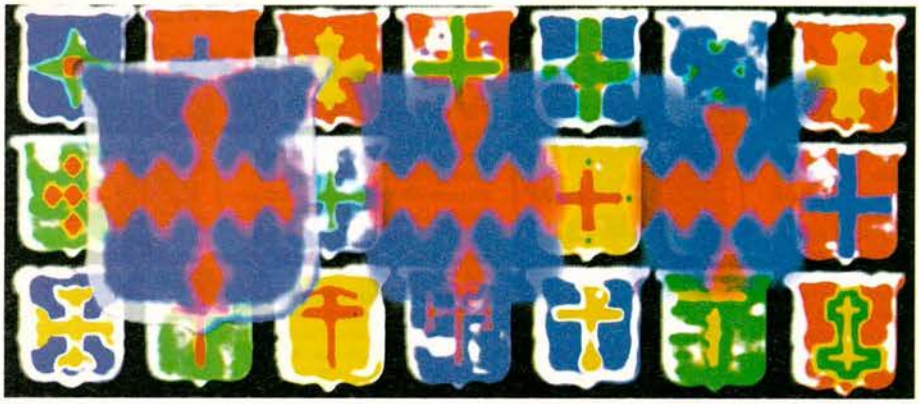
DA's Picture incorporates many advanced tools like the 'Virtual Memory Manager' for the first time on the RISC OS, which uses the hard disk as virtual memory, enabling the user to manipulate large images even on smaller systems. Tremendous amounts of computer memory is needed when working with colour images, such as full size Kodak Photo CD™ and directly scanned artwork.

"Any serious retouching program needs a Virtual Memory Manager".





DA's Picture incorporates 8 bit masking. With 8 bit masking we allow full or partial shielding of an 'effect' on an image, and masks can be created with any of the 12 main tools, allowing endless sophisticated effects and soft feathered edges of any montage.



The mouse button system enables the left or right button to be assigned its own tool which is totally independent from the other. One button could be a 'Pencil', the other could be an 'Air Brush', and each tool can have different pressure, size or even colour.

Illustrations created completely in DA's Picture by Mark Bloomfield.

Please send me a copy of DA's Picture for the Acorn @ **£120.00** inc VAT and p&p (Single User Version)

NAME:

ADDRESS:

POSTCODE: TEL:

☐ Cheque Enclosed for £120.00 Payable to CGS ComputerBild

☐ Please debit my Access/Visa Card No:

Expiry Date: Signature

PLEASE SEND COMPLETED COUPON TO: CGS ComputerBild, 231 Northborough Road, Norbury, London, SW16 4TU
Or order by phone on 081-679 7307 or fax on 081-764 7898

Omniscient

THIS game is centered around a fat wizard charged with the task of collecting the eight Talismen of Knowledge stolen by an evil witch from the ancient University of Wizardry. Together these Talismen will give the witch all the powers of the omniscient wizards, so understandably the wizards are none too happy.

It is rumoured that these items can be found in a large set of caves protected by a magical field. To destroy this barrier and escape, the Talismen must be offered at the altar where they will be returned to their rightful setting.

In doing so you will complete your rapid rise up the hierarchy and you too will become Omniscient. Fail and your fate will be worse than death.

Keys	
:	up
/	down
X	left
C	right
Copy	pause
Delete	resume game
U	use objects in pocket 2
Return	Drop/take
S/Q	toggle sound

There are 32 screens arranged in an 8 x 4 grid and each screen has dimensions of 16 x 16 cells. Inhabiting the caves are the usual selection of nasties which can be divided into three types:

Springs bounce up and down between two walls
Robots oscillate from side to side in the same way as the springs
Furry the most dangerous as he moves randomly and has a nasty bite

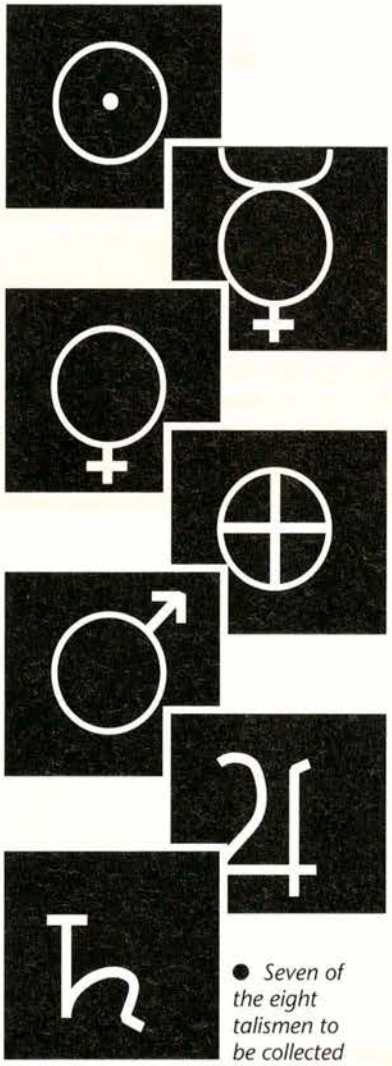
All these adversaries will drain you of one unit of energy each time you touch them. Energy is shown by the coloured bar at the right of the screen. You die when this reaches zero. When your energy rating enters the green zone the screen will flash green once and similarly each time you lose energy in the red zone.

There are also some static nasties around such as the red mushrooms and the force field. Both of these obstacles will drain your energy if you come into contact with them. However, if you are holding the bubble shield – to be found later in the game – they are harmless.

Objects can be dropped anywhere. When you pick up an object the previous contents of pocket two are discarded and the object in pocket one moves to pocket two.

Your new find is then put into pocket one. You can only use the object in pocket two. You'll find that most objects need to be actively dropped or used but some are used automatically.

Peter Brown



● *Seven of the eight talismen to be collected*

Acorn COMPUTING

Don't miss out on the great programs for the Acorn 8-bit machines that you can receive every month. From software written specially for *Acorn Computing* readers to an excellent selection of PD programs.

Subscribe now, turn to Page 40

Hints

- After you go over a pentangle once it does not disappear. Leave all the wands beside their pentangles so that you can always get through a door without having to carry a key constantly.
- To get two objects over a pentangle take one over with the wand and drop it to one side. Go back over the pentangle and collect the second object. Take it over and retrieve the first object dropping the wand.
- Always aim to have full pockets. You can nearly always be carrying something and this saves time and energy.
- Not all walls are solid.

FAULTY DISK?

If your subscription disk has a physical fault – doughnut won't rotate in the sleeve, disk errors and so on – please return it for replacement to:

Datapulse Disk
Unit 5
Station Road
Hungerford
Berkshire RG17 OL7

If there seems to be a fault with one of the programs please contact us at the magazine by post describing your machine set-up and exactly what happens when you run the problem program.

ICS

051-625 1006

SOFTWARE

Price list prepared 24th May 1994

10 out of 10	*10 out of 10*	
– Dinosaurs, Driving Test, Early Essentials (-6), English (6-16), French (6-16), Junior Essentials (5-11), Maths Algebra (6-16), Maths Number (6-16), Maths Statistics (6-16), Spelling each		£18
– German, Italian, Science, Spanish each		£POA
Access for A3000	*Acorn*	£138
Access for A3020/A4000	*Acorn*	£138
Access for A5000	*Acorn*	£143
Access for Risc PC 600	*Acorn*	£118
Acorn Advance	*Acorn*	£88
– Primary Licence		£183
– Secondary Licence		£442
Advantage, KS2,3	*Longman*	£46
Almanac 3	*Stallion*	£64
Amazing Maths, KS1-4	*Cambridgeshire*	£19
Animated Numbers, age 3-6	*Sherston*	£19
Apollonius PDT	*Oak*	£149
ArcFax	*David Pilling*	£28
ArcFS 2	*Vertical Twist*	£20
Archimedes Assembly Language	*Dabs* vo	£15
– with disc		£22
Archimedes Game Maker's Manual	*Sigma* vo	£15
Archivist Pro	*Oregan*	£36
Arcterm 7	*Serial Port*	£58
Arcventure – I ... The Romans, age 10-12; II ... The Egyptians, age 8-9; III ... The Vikings, age 7-11 – each	*Sherston*	£25
Armlock	*Digital Services*	£33
	Sherston	£37
ArtWorks	*CC*	£112
– network licence		£650
– site licence		£545
ArtWorks CD	*CC*	£153
ArtWorks Made Easy	*Dabs* vo	£15
AudioWorks	*CC*	£45
	Acorn	£366
Aztecs, age 7-11	*Sherston*	£37
Badger Trails, age 9-11	*Sherston*	£35
Battlechess	*Krisalis*	£13
BBC Basic Reference Manual	*Acorn* vo	£22
Beginner's Guide to Wimp Programming on the Archimedes	*Sigma* vo	£13
Birds of War	*Fourth Dim*	£24
Bitfolio Cartoon Graphics	*Look*	£17
Black Angel	*Fourth Dim*	£24
Bodywise, age 9-14	*Sherston*	£37
Bookstore	*ESM*	
– Primary, KS1,2	*ESM*	£35
– Secondary, KS3,4	*ESM*	£53
Break 147 & Superpool	*Fourth Dim*	£24
C (new edition)	*Dabs* vo	£16
– with disc		£24
Cambridge Pascal	*Oak*	£65
CardShop	*Clares*	£19
Carnage Inc.	*Fourth Dim*	£18
Castle of Dreams, age 7-11	*Storm*	£20
Cataclysm	*Fourth Dim*	£14
Chameleon	*4mation*	£33
Champions Compilation	*Krisalis*	£13
Chaos Engine	*Renegade*	£19
Chocks Away Compendium	*Fourth Dim*	£25
Chopper Force	*Fourth Dim*	£13
Chuck Rock	*Krisalis*	£17
Clip Art CD	*CC*	£18
Conjuguez	*Creative*	£25
Crystal Maze, age 7-70	*Sherston*	£28
Crystal Rain Forest, age 8-11	*Sherston*	£33
Cyber Chess	*Fourth Dim*	£24
Cycloids	*GamesWare*	£16
Darryl the Dragon, KS1,2	*4mation*	£18
– site licence		£36
Darryl the Dragon Activity Sheets	*4mation*	£10
DataPower	*Iota*	£123
Demon's Lair	*Fourth Dim*	£13
DeskEdit2	*RISC*	£25
Desktop Assembler	*Acorn*	£118
Desktop C	*Acorn*	£178
Desktop Thesaurus	*RISC*	£17
Desktop Tracker	*Vertical Twist*	£50
Digital Symphony	*Oregan*	£41
Dinosaur Discovery, KS2	*4mation*	£25
– site licence		£54
Disc Commander	*Digital Phenomena*	£29
Disc Rescue	*Look*	£28
DrawBender	*ICS*	£10
– site licence		£30
Dungeon	*Fourth Dim*	£24
Easy C	*RISC*	£45
Easy Font	*Fabis*	£24
Ego: Repton 4	*Superior*	£18
Elite	*Hybrid*	£32
Enter the Realm	*Fourth Dim*	£13
E-Type Compendium	*Fourth Dim*	£13
Eureka 2	*Longman*	£93
Exotic Adventures of Sylvia Layne	*Fourth Dim*	£13
Fervour	*Clares*	£16
Find It!	*Appian*	£34
Fireworkz	*Colton*	£123
First Logo, KS1,2	*Longman*	£21
First Page, KS2-4	*Longman*	£42
First Steps in Programming Acorn RISC OS Computers	*Sigma* vo	£15
Flossy the Frog, KS1	*4mation*	£23
– site licence		£48
Flossy the Frog Art Disc	*4mation*	£10
Fontasy	*ICS*	£15
– site licence		£45
Fontasy / DrawBender / Placard	*ICS*	£30
– site licence		£80
Font Directory	*Look*	£28
FontFX	*Data Store*	£9
– site licence		£70
Fonts Pack 1	*Fabis*	£15
Fonts Pack 2	*Fabis*	£15
Food for Thought, age 7-16	*Sherston*	£15
F.R.E.D.	*GamesWare*	£15
Freddy Teddy	*Topologika*	£15
– Balloons & The Zoo	*Topologika*	£20
– The Playground	*Topologika*	£25
– The Puddle & The Wardrobe	*Topologika*	£20
Freddy Teddy's Adventure	*Topologika*	£15
Fun School 4	*Europress*	
– age -5, age 5-7, age 7-11 each		£17
Galactic Dan	*Fourth Dim*	£15
Games Wizard - The Apprentice	*GamesWare*	£17
Genesis Professional	*Oak*	£112
Genesis Project	*Oak*	£47
Genesis SDK	*Oak*	£750
Gods	*Krisalis*	£17
Granny's Garden	*4mation*	£23
– site licence		£48
Granny's Garden CD	*4mation*	£28
Granny's Garden Resource Pack	*4mation*	£15
Graphics on the ARM Machines	*Dabs* vo	£15
Graph_IT	*Sherston*	£19
GridPro	*4mation*	£35
– site licence		£70
Grievous Bodily 'ARM	*Fourth Dim*	£15
Hard Disc Companion II	*RISC*	£40
Haunted House	*Fourth Dim*	£18
Hearsay II	*RISC*	£69
Heimdall, limited offer	*Krisalis*	£13
HeroQuest	*Krisalis*	£13
Holed Out Compendium	*Fourth Dim*	£13
Home Accounts	*Minerva*	£28
Illusionist	*Clares*	£41
ImageMaster	*David Pilling*	£24
Impression	*Dabs* vo	£14
– with disc		£17
Impression Borders Pack 1	*Fabis*	£10
Impression Borders Pack 2	*Fabis*	£10
Impression Publisher	*CC*	£135
– OPI Supplement		£225
Impression Style	*CC*	£76
– site licence		£435
Interdictor 2	*Clares*	£25
Investigator III	*Vertical Twist*	£42
Ixion	*GamesWare*	£16
Jahangir Khan Squash	*Krisalis*	£9
James Pond	*Krisalis*	£18
James Pond 2 - RoboCod	*GamesWare*	£19
Junior PinPoint, KS1,2	*Longman*	£25
– primary site licence		£83
Junior PinPoint Datafile, KS2,3 – Animal Kingdom, Dinosaurs, Festivals, Food Glorious Food, Junior Olympics, The Victorians each	*Longman*	£13
Keylink Prolog	*Keylink*	£69
Keystroke	*Quantum*	£24
Kid Pix, KS1,2	*ESM*	£34
Knowledge Organiser 2	*Clares*	£63
Krisalis Collection	*Krisalis*	£20
Landmarks. KS2,3 – Aztecs, Civil War, Columbus, Egypt, Elizabeth I, Rain Forest, Second World War, Victorians each	*Longman*	£21
Landmarks – Microworld Invasion	*Longman*	£22
Landscapes	*Longman*	£46
Last Ninja	*Superior*	£13
Lemmings	*Krisalis*	£17
Lemmings II (Tribes)	*Krisalis*	£20
Little Red Riding Hood, age 5-8	*Selective*	£13
Logo, KS1-4	*Longman*	£55
Lotus Turbo Challenge 2	*Krisalis*	£18
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Magnetoids	*Oregan*	£23
Magpie	*Longman*	£50
Manchester United	*Krisalis*	£9
Manchester United Europe	*Krisalis*	£13
Master Break	*Superior*	£13
Masterfile III	*RISC*	£45
Maths Circus	*4mation*	£25
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Monotype Fonts (Pack 1)	*Look*	£76
Morpheus	*Oregan*	£29
MultiFS	*Arxe*	£29
Music Box	*Topologika*	£32
Naughty Stories (5-7) (set of 6)	*Sherston*	
– Volume 1		£39
– Volume 1 primary site licence		£99
– Volume 2		£39
– Volume 2 primary site licence		£99
Nebulus	*Krisalis*	£17
NightSky	*Clares*	£63
Noddy's Big Adventure	*Jumping Bean*	£18
Noddy's Playtime	*Jumping Bean*	£18
Noot	*4mation*	£41
– site licence		£88
Noot Art Disc	*4mation*	£10
Notate, KS2-4+	*Longman*	£50
Oh No! More Lemmings (requires Lemmings)	*Krisalis*	£15
Omar Sharif's Bridge	*Krisalis*	£19
Orrery	*Spacetech*	£93
Ovation	*RISC*	£79
Oxford Reading Tree Stage 2 Story Books, age 5-7	*Sherston* vo	£9
Oxford Reading Tree Stage 2 Talking Stories, age 5-7	*Sherston*	£37
Padlock	*ICS*	£10
– site licence		£30
Pandora's Box	*Fourth Dim*	£13
PenDown, KS1-3	*Longman*	£45
PenDown Etoiles, KS3,4	*Longman*	£49
PenDown Outline Fonts	*Longman*	£17
PenDown Plus, KS2-4	*Longman*	£67
Personal Accounts V3	*Apricote*	£38
Perspectives	*TechSoft*	£54
Photobase – Landscapes	*Longman*	£47
Photodesk	*Spacetech*	£157
Photo Touch	*Oregan*	£68
PIMS	*Longman*	£339
PinPoint 2, KS3,4	*Longman*	£79
– site licence		£340
PinPoint 2 Datafile, KS3,4 – 1851 Census, Britain since the 1930s, Diet and Nutrition, Far Away Places, Kartei - The German Questionnaire, Second World War, Solar System – each	*Longman*	£13
Placard	*ICS*	£10
– site licence		£30
Play It Again Sam 1	*Superior*	£19
Play It Again Sam 2	*Superior*	£19
Play It Again Sam 3	*Superior*	£19
Plot	*Clares*	£63
Populous	*Krisalis*	£13
Powermonger	*Krisalis*	£22
Premier Manager	*Gremlin*	£21
PrimeArt, KS1-4	*Minerva*	£58
PrimeMover, KS2-4	*Minerva*	£69
PrimeSolver, KS1-4	*Minerva*	£74
PrimeWord, KS2-4	*Minerva*	£51
Printer Drivers, RISC OS: Canon BubbleJet, Canon LBP, Canon PJ1080, ColourCel, Epson JX, Epson ESC-P2, HP, Integrex 132 – each	*Oak*	£15
Deskjet 500C, Epson / Star colour – each	*RISC*	£15
ProDrivers: Canon LBP8, Epson ESC-P2, HP Colourjet – each	*Oak*	£33
TurboDrivers: Canon, Epson Stylus 800, HP – each	*CC*	£42
ProArtisan 2	*Clares*	£102
ProArtisan 24	*Clares*	£POA
ProArtisan 2CD	*Clares*	£129
ProCAD, KS4	*Minerva*	£450
Programming in ANSI Standard C on the Archimedes	*Sigma* vo	£15
Prophet (requires 2 Mb)	*Apricote*	£145
Prophet Entry Level	*Apricote*	£8
Quest for Gold	*Krisalis*	£13
QuicKey	*ICS*	£10
– site licence		£30
Raw Power II	*GamesWare*	£16
Real McCoy 4	*Fourth Dim*	£22
Recall, age 8-13	*Sherston*	£37
Recordz	*Colton*	£97
RemoteFS Parallel Port	*Atomwide*	£49
RemoteFS Serial Port	*Atomwide*	£49
Render Bender 2	*Clares*	£40
Rephorm	*Oak*	£47
Repro	*Oak*	£46
Repton 3	*Superior*	£19
Resultz	*Colton*	£97
– secondary site licence		£470
Revelation	*Krisalis*	£9
Revelation 2, KS2-4	*Longman*	£65

We'll be changing the style of our ads over the next couple of months.

You'll notice that the length of this list has already been reduced. The number of Acorn products keeps growing, and until now we were listing a substantial proportion of them. It's become an impractical goal for a magazine advert. One problem is that we have to set prices a month before you see them, by which time quite a few will be out of date.

BUT ...

NO CHARGE FOR CREDIT CARDS

POSTAGE IS FREE

FOR PREPAID SALES IN THE UK

We can supply you with almost any Acorn product, whether it is listed here or not.

Just call 051-625 1006 for an immediate price on most items. (Our phone does tend to be busy, so sending an SAE for a full up-to-date price list may be a quicker option).

All ICS business is done on Acorn computers using RISC OS software

Revelation 2 CD Rom	Longman	£90
Revelation ImagePro	Longman	£125
Rhapsody 3	Clares	£75
Rhythm-Bed	Clares	£38
RISC OS 3 Applications Upgrade	Acorn	£10
RISC OS 3 First Steps	Dabs	vo £15
RISC OS 3 Programmer's Reference Manual	Acorn	vo £99
RISC OS 3 User Guide	Acorn	vo £22
RISC OS 3 User Guide for Risc PC 600	Acorn	vo £22
RISC OS Style Guide	Acorn	vo £13
Risc PC 600 Technical Reference Manual	Acorn	vo £POA
Risc PC 600 Welcome Guide	Acorn	vo £8
S		
Saloon Cars Deluxe	Fourth Dim	£24
– Deluxe Extra Courses		£15
S-Base 2 Developer	Longman	£189
S-Base 2 Developer Plus	Longman	£345
S-Base 2 Personal	Longman	£109
Schedule	Acorn	£18
Schema 2	Clares	£95
Score Draw	Clares	£45
Sea Rescue, age 7-9	Sherston	£24
Sensible Soccer	Renegade	£19
Serenade	Clares	£79
Shylock Gnomes, age 10-15	Selective	£16
Sibelius 6	Sibelius	£149
Sibelius 7	Sibelius	£789
– education and amateur price		£464
Sim City	Krisalis	£22
Simon the Sorcerer	GamesWare	£29
Sleuth	RISC	£41
Small	Virgo	£19
smArt	4mation	£46
smArt Aliens, Animals, Dinosaurs, Egypt, Europe†, Faces*, Fantasy, Fashion, Fiddles & Drums, Heraldry, Homes*, Leisure*, Look Smart, Smartoons, Trees and Gardens *English/French/German/Spanish/Welsh; †English/French/German; please specify each	4mation	£15
smArtFiler	4mation	£32
smArt Modern Languages	4mation	£19
SolidCAD	Silicon	£77
Somerset Talking Computer Project Learning Materials	Longman	vo £29
SparkFS	David Pilling	£20
Sparkle	Morley	£59
Special	ICS	£10
– site licence		£30
Speedball II	Krisalis	£17
Splash, age 7-11	Sherston	£17
Split an Image, age 7-16	Sherston	£16
Spooler (Clares)	Clares	£12
Spooler (Comp Tut)	Computer Tutorial	£9
Squirrel 2	Digital Services	£127
– site licence		£545
Squirrel C Developer's Toolkit	Digital Services	£97
Starspell Plus	Fisher-Marriott	£19
Striker	GamesWare	£21
StrongED 3	Stallion	£22
Stunt Racer 2000	Fourth	£24
Stunt Racer 2000 Extra Tracks	Fourth	£16
Swiv	Krisalis	£9
T		
Talking PenDown, KS1-3	Longman	£53
Talking Pictures	Wyddfa	£18
Talking Pictures Welsh (Lluniau Llafar)	Wyddfa	£18
Talking Stories – Gwen at the Fair, Gwen goes to School, Gwen's Nose, Gwen's Tummy each	Wyddfa	£17
Target Maths, age 6-13	Triple R	£16
Technodream (Nevryon 2)	Superior	£19
Time Detectives ... The Victorians, age 7-11	Sherston	£37
Time Traveller, KS2	ESM	£39
Titler	Clares	£79
Topographer	Clares	£61
Touch Type	Iota	£38
– site licence for 10		£137
Trace	David Pilling	£9
Twain Canon IX incl Scan-Light Professional	David Pilling	£16
Twain Epson GT8000, 6500	David Pilling	£16
Twain HP Scanjet II, IIc, IIcx	David Pilling	£16
TWO (Task and Window Organiser)	ICS	£10
– site licence		£30
TypeStudio	RISC	£38
V		
Vector	4mation	£75
Victorians, age 7-11	Sherston	£POA
Viewpoints, age 7-11	Sherston	£36
Virtual Golf	Fourth Dim	£23
Visual Backup	Dabhand	£39
Vox Box	Clares	£40
W		
Waiter	Digital Services	£35
WimpGEN	Silicon	£79
WordWorks	CC	£36
Wordz	Colton	£75
WorraCAD	Oak	£65
X		
Xenon 2	GamesWare	£19
Z		
Zelanites (not OS 3)	Micro Power	£15
Zool	Gremlin	£18

PLEASE TELL TIM . . .

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† Fitting fairly easy ‡ Fitting needs expertise

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A305/310/440 1-4 Mb soldered + MEMC1a‡	IFEL	£158
– as above + fitting		£188
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Risc PC 2 Mb VRAM	HCCS	£148
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– as above + SCSI interface	CC	£699
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– A5000/400/300/RPC600		£96
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Bubble Jet BJC-600 + TurboDriver	Canon/CC	£465
Bubble Jet BJC-800 + TurboDriver	Canon/CC	£1219
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DeskJet 560	Hewlett-Packard	£415
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Backplane, 4-slot 4-layer with fan	IFEL	£55
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– A3000 External	Wild Vision	£225
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EPS Toner Cartridge for LBP-8		£75
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Seal 'n Type spill-proof Keyboard Covers		

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– A3000	Kador	£14
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SVGA Multiscan Monitor 14"	Acorn	£315
– bought with computer		£250
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While stocks last

For ordering details please turn to page 3

ICS

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SPECIALS

Unrepeatable prices for a few items because we want to reduce our stock levels

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HiVision colour A3000 Series internal	£125
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Printer/SCSI	£63
RemoteFS	£43
Scan-Light Professional + SCSI Interface	£625
Schedule	£15
Whisper Fan Quietener (for A300/A400 Series only)	£10

Offer applies only while stocks last • VAT extra

HOW TO ORDER

VAT: Zero-rated items are marked V0. UK customers please add 17.5% to all other prices. EC customers outside the UK (including BFPO) please do the same unless you are VAT registered, in which case quote your international VAT number. Ours is GB 595 7258 84.

CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING.

Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable at a London clearing bank, or Eurocheques for not more than £100 each.

Cheques should be made payable to Ian Copestake Limited.

Credit cards are welcome. We do not charge your account until your order is fulfilled. Your name and address must be as known to the credit card company. If you are leaving an order on our answering machine please include your telephone number, the expiry date of your card, and your calculation of the total payment due. We will make no charge for credit card commission unless we have informed you first.

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All products, prices and specifications are offered in good faith and are subject to change without notice. We process all orders immediately, but suppliers do sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval. Returns and cancellations can only be accepted by prior agreement and there may be a charge to cover the costs involved.

A5000 users

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- ***270 Mb version available soon***
- ***Also available for Risc PC – please enquire.***

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Information revolution

OH no, not *another* revolution. Don't you just get fed up with them? Why can't we just rest on our laurels and not actually develop anything for, what do you think, 10 years? 20? Let's keep everything the same for a while, eh? Fat chance.

The latest stage of the information revolution is beginning to take shape. Imaginative pundits have been predicting this move for a long time but it's going to happen within the next 10 years.

CD-Roms are probably the last form of independent storage medium that will be developed for the retail distribution of data – of course data means music, software, films and the like.

Why? Because at a point in the relatively near future you will not be buying or renting data over the counter. There will be no video shops and no high street music shops – except perhaps for the specialist who sells vinyl, cassettes and CDs like antiques, not for playing you understand, but just for the sake of owning them.

Instead you will be able to access a central network that will have every recorded form of human creativity on file and ready to be broadcast direct to your home. Every episode of Star Trek: The Next Generation, for example, will be there, and you'll be able to watch any one you fancy.

Why not watch an early Tony Hancock episode? Or perhaps you want to listen to a piece of Mozart you've read about but never heard? Or, if you're researching, you can cross-index every reference to your subject using the online services.

Of course there's no reason why information access must stop at country borders. Already the Internet is world-spanning and so, at a price, would this incomprehensible colossus of data. But here we begin to tread on very serious social issues.

With European satellite television it is possible to receive channels in the UK which contain material that it is illegal to broadcast publicly here. With the advent of such a vast information network it would be impossible to monitor what data is available – and distance is no object to raw data.

Hardware decoders such as those used by the satellite channels are a possibility – but those only control the commercial aspects of data access. You acquire a decoder to receive a particular channel and it does not affect what that channel supplies.

There is probably a way around this but even given the situation where everyone can get access to the information net, not everyone will be able to *afford* to access the data. We could be looking at new social division: The Information Have's and Have not's.

I am trying very hard not to be judgemental here because my opinions are moulded by my own education and experiences. However, I do not consider the availability of information to be a bad thing. Ignorance is not bliss, it is hell.

Did I mention *commerce* back there? I believe I did. At present we have public libraries that permit any citizen to have access to all books and music.

With the information net, what *commercial* organisation is going to let the equivalent public library server *give away* their copyright material when they want people to *buy* it?

On the other hand, with the ability to spread truth on such a vast scale, and almost instantaneously, you also have the problem of mis-information, either accidental or deliberate.

Like most of the problems that surround technology it's not the machinery that's faulty but the people who use, or misuse, it.

Steve Turnbull – Editor

Steve Turnbull looks at the technological implications of more information

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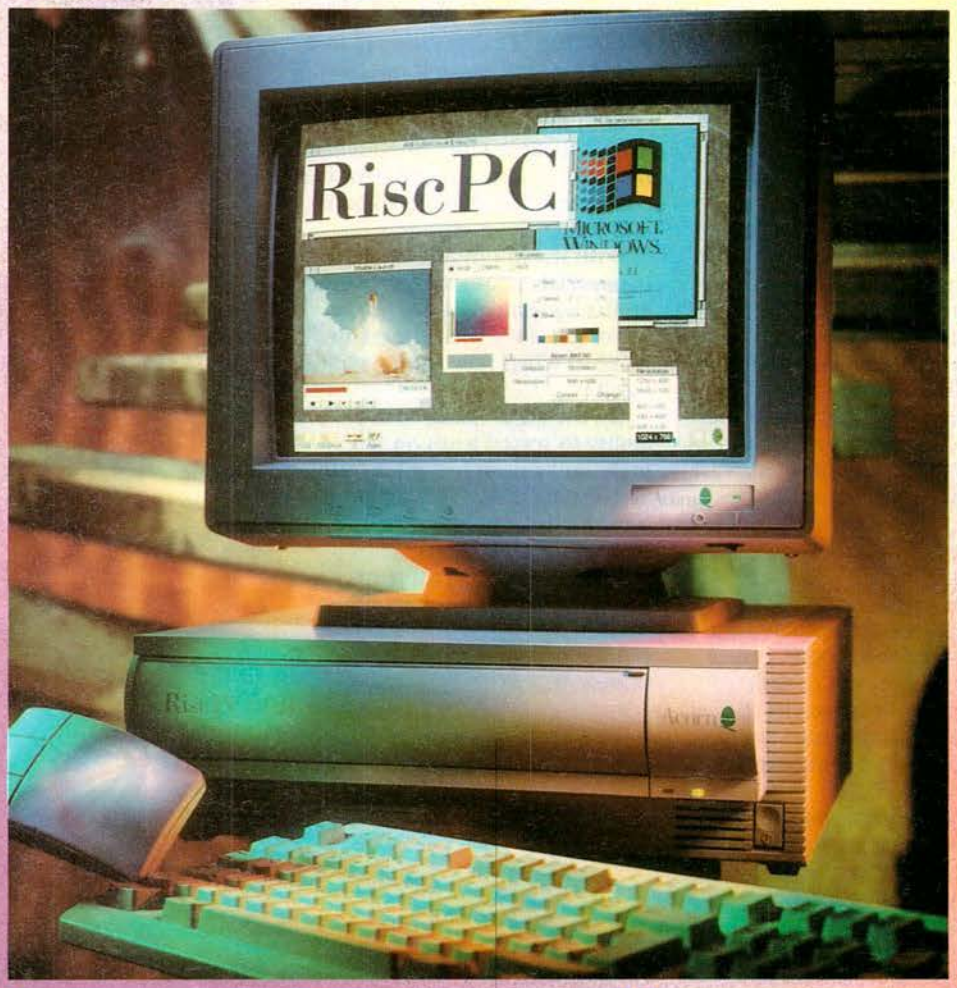
Upgrade to a RISC PC *with* BEEBUG

Acorn's Largest Dedicated Dealer

The Risc PC offers significant advantages over the rest of the Acorn range. BEEBUG are making some exciting offers as well as giving you the opportunity to trade in your existing Acorn computer for a Risc PC.



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- We will copy your existing data from your hard drive to the new machine.
- Tell us what software and versions you are using and we will provide advice and help on upgrading where necessary.

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- Call us with details of your current system and we will tell you how much allowance can be made for trade-in.
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- **Schema** *Worth* **£114**
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- **10 HD (2Mb)** blank discs. *Worth* **£12**

or-

Order a PC Card when you purchase for just £25

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Sound from Solent

THE SoundLab software accompanies the popular Oak Recorder 2 sound sampling system. This update gives 100 per cent compatibility with the Risc PC which was redesigned with improved sound output hardware to reproduce high quality sound samples more effectively up to 20kHz.

The new version of SoundLab can process samples to match the increased sensitivity to high frequencies, giving much better reproduction of 10kHz sound samples which can be applied to both new and existing samples.

Oak Recorder 2 retails for £50.47 inc VAT, but existing users can send their original disk and £5 to Solent Computer Products (0954 789701) for an update. If you want to purchase SoundLab software on its own to process existing samples this will cost £18.74 inc VAT.

Archimedes day

THE University of Sussex is holding an Archimedes day on Thursday 7 July for school and college teachers. The main theme of this meeting will be the production of high quality mathematical graphics and a special feature will be the launch of DrawBasic.

This procedure library was developed by Joe Taylor and both the software and manual are included in the cost of the workshop – £26. DrawBasic will be on general release this autumn. Further details on the meeting can be obtained from Mrs M Purton on 0273 678103.

Green issues

UPTON Country Park outside Poole is the venue for an exhibition of children working with Information Technology in the Environment. Organised by The Dorset IT Team (0929 405059) the exhibition will take place on the 13-16 July.

Schools will be involved in workshops on Wednesday to Friday with Saturday giving parents and the general public a chance to see the work achieved and try their hand at the activities.

A group of students will be producing a newspaper reporting on the event which will be printed by the local paper, the Bournemouth Evening Echo.

More power to your ARM

AS THE term *RISC* becomes synonymous with the technology everyone must have in 1994, more companies can be seen accessing their RISC technology from Advanced RISC Machines (0223 400400) who design the ARM chips.

Samsung has signed a licence to use RISC technology and will embed ARM6, ARM7 and ARM610 RISC technology in products jointly developed by Samsung and ARM Ltd for emerging markets where computing, communications and consumer electronics converge.

Samsung plan to begin sampling its first product using the ARM RISC processor core in 1995 and one of their planned digital convergence consumer products looks like being a *personal digital assistant*.

Also worth a mention is that IBM and VLSI have announced a memorandum of understanding for the development of silicon chips for the Serial Storage Architectures (SSA) interface.

VLSI will manufacture and develop ARM-based ICs for SSA applications that will be available for purchase and use by IBM and others in future storage products.

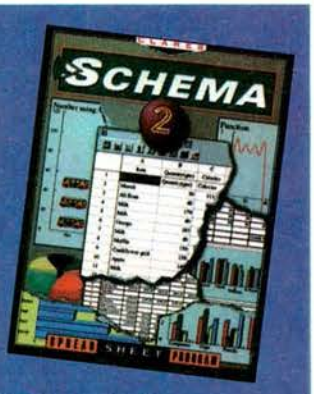
IBM are promoting SSA as an industry standard as it offers much higher operating speeds than existing serial protocols such as RS232, so can be used with high-speed peripherals such as hard disk arrays. At present the only viable option for such devices is a parallel interface.

Serial interfaces require simpler cabling so are less expensive and more reliable. SSA also gives higher transmission rates. SSA, which has been developed by IBM in the UK, offers an easy migration path for systems currently using SCSI interfaces as the supporting code will need minimal rewriting.

SSA performance is impressive so far, with an SSA node achieving a total transmission rate of 80Mb/second with sophisticated error-detection and isolation features to deliver extensive transparent error recovery.

However, significant processing power is needed – enter ARM. VLSI will be using an ARM RISC core because of its high performance, small size and the ease with which it can be embedded into the custom ASICs, reducing the chip count and cost and making SSA more appealing in its bid to be an industry standard.

The new scheme of things

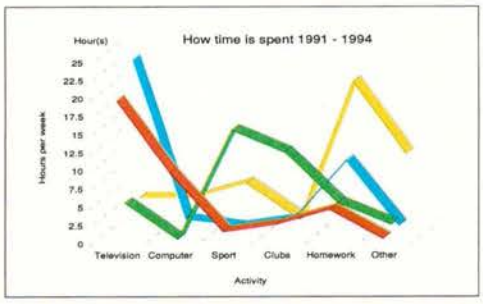


CLARES Micro Supplies (0606 48511) have released version two of their spreadsheet package Schema. This program has been written by CRM who also produced the spreadsheet in Acorn's integrated package Advance, and is upwardly compatible with this.

Schema 2 features a flexible macro language modelled on BBC Basic and these can be used to extend the Schema 2 menus, add additional graph types and new functions. You can also generate front-end applications.

Further enhancements give live graphs embedded or multi-line text in cells, and an icon ribbon. Clares report a speed increase of 300 per cent over the original Schema. The price of the new package is £135 inc VAT but existing users can upgrade for £67.50.

Charting progress



ANYONE involved in producing charts and graphs should take a look at the latest version of Charts and Graphs from Computer Tutorial Services (0983 294333). Now in its second incarnation, the new version is mode independent so that it can be used successfully on the Risc PC.

However, CTS have also included multi-graph capabilities, draw file printing facilities, 3D graphs and of course the program is fully RISC OS compliant. The cost is £19.95 inc VAT.

Competition update

The March issue of *Acorn Computing* featured two competitions sponsored by Look Systems and Atomwide. We had a staggering response to both and here are the winners.

Firstly the fonts competition had five first prize winners who received 100 Monotype typefaces: J. Gilligan, Henleaze; Ray Briddock, Hove; M. F. Toner, Wavertree; C. Newman, Copnor, and Michael Hills from Colchester.

Each of the 25 runners-up received a copy of the Font Directory: G. W. Harris, Kings Stanley; Roz Brown, Cowlersley; S. C. Frost, NewBradwell; Mark Rimmer, Heaton; K. W. Coulson, Stroud; A. F. Singleton, Brighton; George McLaughlin, Ayr; William J. Collins, Wenvoe; G. F. Hill, Warton; Ian Ford, Heaton Norris; N. F. Halls, Eaham; Paul R. McCann, Luton; R. W. Sillett, Penkridge; Alex McLintock, Datchworth; J. Benton, Dinas Powys; A. Welsh, Glasgow; R. K. Partridge, West Ealing; L. Hill, Disley; Jeffrey Lunn, Australia and F. B. A. Scheper from the Netherlands.

On the hardware side, Atomwide offered an 8Mb upgrade. The lucky winner was G. W. Spray from Yelverton. George uses his A5000 for collecting pictures from weather satellites and had been feeling the need for more memory.

Commenting on his prize, "In fact I am already considering the possibility of looking at the high definition satellite transmissions."

Last year Sherston Software threw down their Crystal Maze gauntlet and 10 lucky winners picked it up. On a bright Saturday morning the winners gathered in Blackpool to take part in the Cyberdrome Crystal Maze.

Splitting into two teams and sporting the jumpsuits from the actual TV show, our two intrepid teams set off, led by James Bayliss from Sherston and Steve Turnbull respectively – you may ask why Steve isn't wearing a jumpsuit? *We couldn't find one to fit.*

Not surprisingly our winners proved more than capable. And the final scores?

For the sake of anonymity the *Archies* collected eight crystals and scored 194 in the dome and *Panic* managed eight crystals, one lock-in and an overall score of 170 before adjourning for lunch and the wonders of Blackpool.

We were informed by the Cyberdrome manager that first time scores are usually only 50 – not bad.

Independent access

ACORN's leasing scheme for schools is to be extended to the independent sector. Called Independent Options, it gives schools the opportunity to swap old hardware for new during a rental period so they can be sure that they are not left behind by future technological developments.

As well as hardware, software and on-site support, technical or curriculum training is available through the scheme. For more information contact Options Administrator Dawn McKenna on 061-832 6925.

Speedy PC

FIRST SMT (0462 483360), the Letchworth-based company, were used by Aleph One to modify their PC expansion cards to give increased performance.

Now First SMT – with the approval and support of Aleph One – are offering a significant upgrade to these boards by changing the CPU chip without changing the board's clock frequency.

For instance, a 386 or 486 chip can be changed to either a standard 486 or the new *clock-doubled* 486 CPU chip which runs at twice the board's frequency.

You will need to send your board to First SMT who will test, modify and re-test your board. It costs £107 to upgrade from a 386SX to 486SLC, or £166 if you want an upgrade to the clock-doubled 486 SLC.

Furthermore, if you missed the basic Fast PAL upgrade and want it as well, they will fit the Fast PAL upgrade for only £19.50 while they have the board – it includes the new Windows driver software supporting 800x600 pixels.

If you only want the Windows driver software it costs £29.38. These offers expire on 31 December 1994.

Speed improvements

Using Norton v5 sysinfo		
CPU	53.5 (was 9.6)	+557%
Overall	36.1 (was 6.9)	+523%
Using Windows User		
CPU	6.2 (was 1.8)	+344%
Overall	3.0 (was 1,7)	+176%

Colour on

TJ REPRODUCTIONS (071-372 4430) is a print bureau which specialises in Acorn disk-to-print and they have now introduced a brand new RISC Scan service.

With the installation of a four Colour Drum Scanner which scans at 5,000 x 5,000 dpi, you have a resultant image of 25,000,000 dpsi. In addition, rather than using dithering or interpolation techniques this system used a PhotoMultiplier Tube to ensure full resolution optical imaging of the original.

Previously images using this hardware could only be accessed on the Apple and IBM platforms, but TJ's RISC Scan gives the Acorn DTP professional this facility.

Save the turtle

RECENT events on the Galapagos islands have highlighted the plight of the ancient turtle. But this creature, which has existed since the dinosaur age, is threatened in other parts of the world too.

Longman Logotron gave their support to a Conservation Expedition to the Greek Island of Zakynthos last July where the turtle is being threatened by uncontrolled tourism.

The expedition was run from King's College, Taunton and consisted of 16 sixth formers who assisted Conservation Groups keen to preserve the endangered nesting beaches of the giant marine Loggerhead turtle.

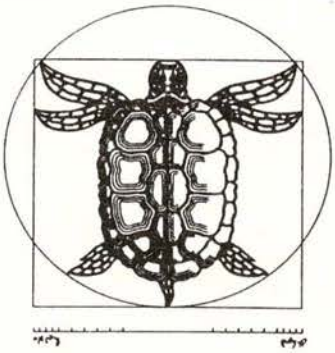
This turtle needs fine warm seas with long sloping sandy beaches and comes into direct conflict with the needs of the tourist industry.

The expedition conducted a major survey for the Sea Turtle Protection Society of Greece (STPS) and MEDASSET – the Mediterranean Association to Save the Sea Turtles. The task involved interviewing over 800 tourists and Longman gave the expedition £500 of software to help collate the results.

The group used Pinpoint to design the questionnaires and analysed the data using the results stored on an A4 portable donated by Acorn.

The results have been used by the European Council for Wildlife and Conservation to challenge the Greek Government over its commitment to the conservation of the Loggerhead turtle.

Back in England the school has



transferred its images of turtles on to a PhotoCD which have been processed and placed into Magpie to make a continuous slide show with labels of the Expedition's results.

DTP valuation

OVATION has been reduced in price to £69. This desktop publisher from RISC Developments (0727 843600) has a range of facilities for producing simple letters to complete books. It is easy to use and is very popular in schools, being the county standard for DTP in many areas.

In addition, if you order Ovation before the end of August you'll receive a free copy of RISC Development's Desktop Thesaurus. This integrates with Ovation and contains 200,000 synonyms and antonyms. You'll also receive a book called Getting into Ovation. If you want to try before you buy, a demo disk is available for £5.

Calling all animators

THE organisers of the London Effects and Animation Festival are inviting entries in the categories of: Art, broadcast graphics, commercials, education and training, feature films, games/interactive entertainment, music videos, research, short films, simulation and student work.

Entries will be judged by a panel drawn from the media, potential clients and fellow professionals with the nominations screened and awards presented on Monday 7 November.

The Festival also includes a three day programme of seminars and screenings focusing on the entertainment industry. This will take place alongside the Computer Graphics Expo at Wembley Conference Centre from 8-10 November.

Entries must be in by 7 September and further information can be obtained from Alison Nolan at the Festival Office on 081-995 3632.

The longest day

THE 50th anniversary of the D-Day landings can seem very alien to today's nine-year olds, so Longman Logotron (0223 425558) have released two titles to help 9-13 year olds understand a little more about this landmark in British history. This also complements the BBC's Landmarks series, *Britain since the 1930s*, which will be broadcast in the autumn.

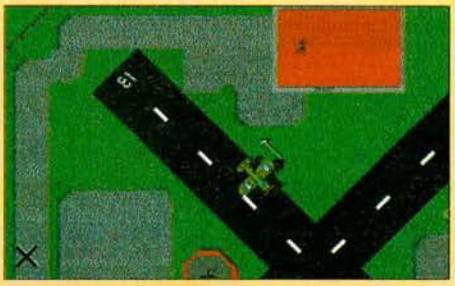
The titles are called Landmarks Microworld Invasion and Landmarks PinPoint Datafile – Britain since the 1930s and integrate well with the previous released Landmarks Second World War.

Microworld Invasion places you in Spring 1944 where, all over Britain, preparations are taking place, including those at an airfield near the village of Westerleigh where there are more planes, soldiers and secrets than ever before.

The program is a graphically-based virtual world which can be explored using a range of tools and where you can lift off roofs to peep inside buildings or examine items using a magnifying tool. The cost is £24.95.

Britain since the 1930s is a new PinPoint datafile which can be used with Junior PinPoint or PinPoint. From 1930 to 1990 data has been collected to help pupils piece together the significant changes which have occurred over the past 60 years.

This includes information about population patterns, housing, censuses, hobbies, pastimes, inventions and so on and costs £12.



● *The small village of Westerleigh's part in Operation Overlord*

Simple mathematics

THERE are two packages from new company Simple Solutions (0709 817648) addressing various aspects of the National Curriculum in Maths Key Stage 2 and 3.

First to be released is a maths/art package called Symple, designed to allow students to explore some aspects of reflective symmetry. It has a very shallow learning curve and costs £15.95 inc VAT.

However, Symple can be used as a normal art program with its 256 colours and a full screen display. The menu is on-screen all the time and the selection of tools is simple.

Secondly, there is a suite of five maths programs called Get it Right, suitable for Key Stage 3 and lower.

Table Take Off gives a player table practice within a scenario of flying a helicopter through a maze to land on a target. The player has 10 missions to complete and there are options to choose which table to use and whether to multiply or divide.

The best and total times can be saved to disk and reloaded into the game for improvement.

In *Flower Power* two players compete to see who can grow a flower first, but watch out for the wrong pair. Each player is presented in turn with a total to make and a total to avoid.

The player's flower grows if a correct total is found. Selection of a wrong total has the opposite effect. There are options to select the type of sum involved – add or times – and the largest digit used.

Place It! teaches place value and the player has the option of two, three or four digit numbers. The aim is to shoot the ball at the correct digit.

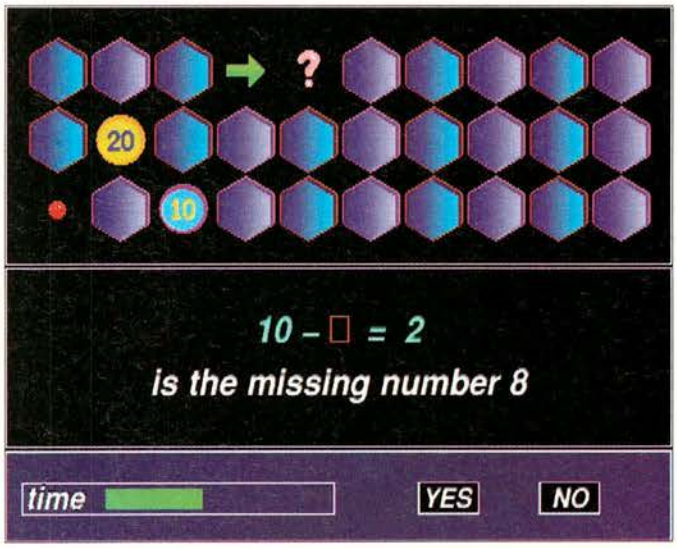
Pair Up is a single-player game where you search for 10 pairs of numbers which add to a user-definable total in the least possible time.

Times can be saved to disk and players learn number bond facts and improve their powers of observation and perseverance.

Finally, you can build a very satisfying bank balance in *Hotspot* by answering questions on a variety of Maths topics. The difficulty level and time to answer can be changed.

Get it Right uses Mode 15 graphics and there is a sound control option. The cost is £19.95 inc VAT.

● *Symple lets you explore aspects of reflective symmetry*



● *Does your knowledge make you a hotshot?*

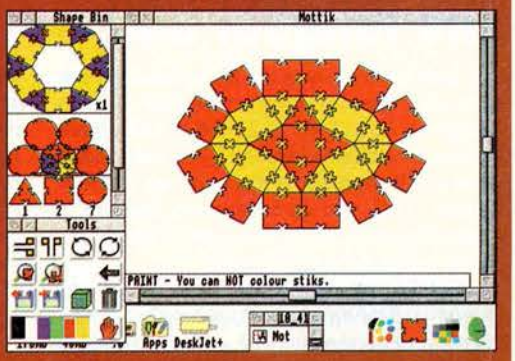
Gas and gaiters

A NEW interactive exhibition with computer workshops aimed at children can be found in Birmingham's Gas Hall gallery from 11 July to 4 September.

Children can design, construct and experiment using programs such as Town Planner from NW Semerc, Spex from Aspex and Imagine and TinyDraw from Topologika.

Topologika have been involved with the development of these workshops as Brochoska-Baynes – the designers of the highly successful Art of Lego and Art Machine touring exhibitions – commissioned Topologika to tailor some of their existing software as well as create a new piece called *Mottik*.

Mottik is the name of a play material designed in Britain for modelling and building. The software – written by Andrew Hersee of Music Box and Diggers fame – enables children to explore Mottik on screen and create models which can be viewed in three dimensions.



Font-u-like

FABIS Computing (0283 552761) have upgraded their font management system, Easy Font. This gives you faster installation of fonts as well as improved file scanning and a default loader for unrecognised filetypes. You can edit styles and create new ones adding bold, condensed and oblique forms to your existing fonts.

Lists of fonts can be saved as text, draw files and objects so you can easily produce a hard copy of all your font families for reference purposes.

Easy Font also works with the Risc PC range. To upgrade just send your existing disk and two first class stamps to Fabis.

Fabis have also increased their range of Impression Border packs. Two are general designs but packs three and four give you Chinese lattice designs and old English tile designs respectively. The cost of each pack is £9.99 inc VAT.

The home-based schoolroom

IF YOU want to wean your child off computer games and on to entertaining and educational use of the computer, Rickitt Educational Media (0458 253636) have an answer – their Summer '94 Educational catalogue. This contains 60 new releases in additional to the 2,000 pieces of software in stock.

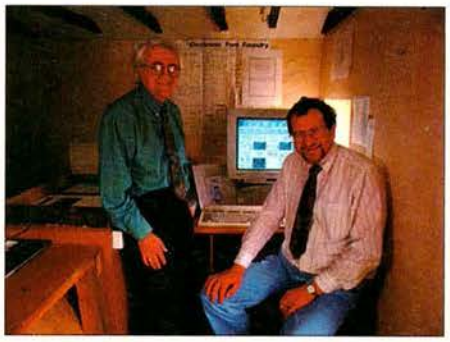
REM have found that many parents do not know that the software their children use at schools is available through mail order. The Rickitt range includes the latest products, from the top educational software houses teaching maths and spelling to creative writing and the new CD-Rom based encyclopaedias.

REM have been selling educational media to schools for 30 years and their catalogue is free.

Playing a round

WE'VE received a plea for help from US Gold. They are considering re-releasing World Class Leaderboard but no longer have a copy of the manual. If you have access to a manual call Bridgett Hirst on 021-606 1800 ext 3178 – there's a reward in it for you .

Pre-press Acorn



AB DICK has installed a complete Acorn pre-press system at Purbeck Press. This is the Graphtex 400 Publishing System which was first seen at Acorn World last October and shows how Acorn machines are slowly taking the initiative away from Mac-based systems.

The Graphtex system comprises an Acorn computer, 21in monitor, A4 flatbed scanner, full page production software and 600 dpi A3 laser printer.

Purbeck Press is based in Swanage and already uses two A3 AB Dick offset presses and being somewhat geographically isolated, it is important to them that they can handle everything in-house.

They had been using an AM Varityper optical system for several years but as technology has moved on they felt the need to upgrade to a system that could go straight to artwork and handle graphics.

As partners Jim Farrer and Graham Jordon started looking for a new system they were met by a barrage of Mac-based systems. "Initially we were impressed but we lost confidence because Apple kept introducing new models", explained Jim Farrer. "Each time we spoke to a dealer, we were told the previous system we had specified and been quoted on had been phased out."

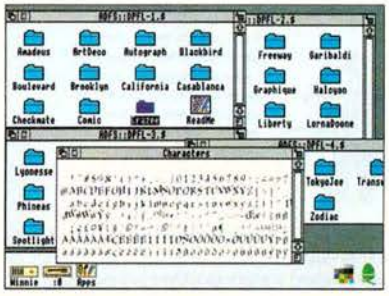
The Acorn set-up gave them the functionality, speed and competitive pricing they wanted. Though very different from the AM system, after two days training Purbeck Press is successfully producing commercial work and are full of enthusiasm for what they will be able to achieve with this technology.

Home-grown fonts

NEW company Dalmatian Publications have released the DP Font Library of 101 outline fonts for £19.95. These fonts aren't ports or conversions from the PC and Mac environments, as Dalmatian took the decision not to licence an established font library as they didn't want to be restricted to the characters which can be provided.

The fonts contain skeleton lines where applicable so that *bits* of the characters won't disappear at small point sizes, and a few have full scaffolding.

The original limited release was in RISC OS 2 format but all the fonts have now been converted to include pair kerning tables for RISC OS 3. You can contact Dalmatian Publications at 30 Henley Grove, Henleaze, Bristol BS9 4EG.



SCSI filers and PhotoCD drivers

OWNERS of Morley 16-bit SCSI cards can now obtain an updated version of the SCSI filing system. The new system is fully compatible with the Risc PC range and includes the latest version of CDFS which is supplied with full PhotoCD-viewing software and enhanced audio compatibility.

Morley (091-257 6355) are now supplying improved SCSI utility software as one application. The enhancements induce the formatting/partitioning which has been simplified with an added feature of locking and unlocking individual partitions.

In addition, there is an auto-configure facility which will set up a typical SCSI system and the utility software is password protected for security.

Morley have also announced a new Toshiba CD-Rom driver for the XM3301, XM3401 and XM4101 drives, allowing you multisession access to PhotoCD. This is available with the SCSI upgrade or separately for £25 inc VAT.

The need to conform

ACORN have introduced the Acorn Hardware Conformance Scheme. This is a technical quality initiative aimed at independent hardware developers and is designed to give customers greater confidence when buying upgrades for their Acorn machines.

Furthering the *open* philosophy which can be seen in the Risc PC range, Acorn want to both encourage and support developers and provide recognition for those hardware upgrades that fully comply with agreed Acorn specifications.

The scheme requires self-certification and entitles developers to display the Acorn Hardware Specification Compliant logo on their product.

Wild Vision and Cumana have both given their support to the scheme and it is expected that most other hardware developers will follow suit.

Acorn Hardware Specification Compliant

More power to your batteries

EVER Ready (0582 600171) have introduced a 1.5v AA size lithium battery. Called the Energizer Hi Energy Lithium, it is heralded as the world's longest lasting AA battery giving around three-times longer life than the alkaline equivalent.

Lithium cells have been around for some time but the AA battery size – which is the most popular of all battery sizes – hasn't had a lithium equivalent until now and a two battery pack will retail for around £5.99.

Lithium batteries have a longer life, are lighter and are designed to operate at extremes of temperature – as low as -40 degrees centigrade. Furthermore, the Energizer Lithium has a 10 year shelf life and contains no mercury or cadmium which are ecologically harmful.

Finally, this Lithium AA has a very flat discharge curve so there should be no noticeable decline in performance during the life of the cell.

Tomorrow's communicators

CUMANA are very proud of their work with schools in developing their own multimedia resources and are a major sponsor of the National Educational Multimedia Awards (NEMA).

The awards were launched by the National Council for Educational Technology (NCET) which is the government body responsible for promoting the effective use of new technology in schools.

The awards will be announced in July but in the meantime several projects stand out. One of these is the work from Frogmore Infants School in Blackwater, Hampshire.

Here, 22 children between six and seven years of age have created a number of multimedia packages using Genesis on their A5000 and A3000 computers.

Encouraged by their IT Coordinator, Maureen Gooding, one of their creations is a class book called *My Mum*. Using the painting package Easel each child has drawn a picture and unprompted comments such as *My mum smells nice*.

PD down under

A NEW outlet has appeared for freeware and public domain software. Based in New South Wales, Australia and run by Alan Jones, Australian RISC gives a more *local* outlet for PD for the growing number of Acorn users in Australia and New Zealand.

To find out more contact Australian RISC at 241 Hawkesbury Road, Winmalee NSW 2777, Australia.

Right to reply

THERE is a new service to readers in this issue of *Acorn Computing* – a Reader Reply Service administered by the magazine. The idea is to make it easier for you to get the full information on any or all programs featured in the advertising pages. The service is totally free including the FREEPOST address for you to send your reply card to.

Full information can be accessed on page 90.

Fast talking

CAMBRIDGE-based ARM Ltd (0223 400400) have joined forces with a group of European companies under the European Community EITC initiative.

Previously known as the ESPRIT initiative, they plan to develop smart card security systems incorporating analysis techniques such as voice recognition.

The project is known as CASCADE – Chip Architecture for Smart CArds and portable intelligent DEvices – was initiated by the French smart card manufacture GEMPLUS and is part of the OMI or Open Microprocessor Systems Initiative.

Smart cards have not evolved beyond the traditional 8-bit based CISC processors from the 1970s, but by developing a new ASIC based on ARM's 32-bit RISC technology ,GEMPLUS expect to make dramatic gains in functionality and performance.

At present ARM has over 100 times the processing power of existing smart card chips so, coupled with ARM's high level programming language support and the ability to handle 32-bit data, the future looks bright for solving complex algorithms such as voice recognition.

Mouse-mania

OXFORDSHIRE-based computer products manufacturer, The Data Business (0865 880857), intend to make mouse mats more fun. These shaped mouse mats vary from the cute pig or the spilt coffee to the *Boobs* design.

However, don't think that this is sexist as there is also a gleaming male torso design called the *Chesterfield*. All bear a smart designer label too.

The price is £6.99 and the mouse mats are made from hard etched PVC tops and cushioned coloured foam base.

Bar coding, bar none

THE BP5780 II is Seikosha's (0753 685873) heavy duty dot matrix printer which now has bar code printing firmware as a standard feature. This £1,599 model can output all major types of bar code: Industrial 2 of 5, Matrix 2 of 5, Interleaved 2 of 5, Code 3 of 9, Codabar, UPC-A, Code 128, UPC-E, Code 11, EAN-13, EAN-8 and Postnet.

Across the board

SONOMARA Computer Video (0626 873763) are distributing a powerful new GenLock adaptor which can be used with every Acorn machine, from BBC B to Risc PC, without any additional software. MultiGen accepts ordinary composite video and S-Video which means that it should appeal to people with Hi8 and S-VHS-C camcorders.

The unit plugs into your computer externally and provides video output for sending to a video cassette recorder or a TV fitted with a video input socket. MultiGen simultaneously accepts input from any suitable moving video source and output from an Acorn machine.

External controls on the MultiGen include an overscan/underscan mode selector as well as a fade control and freeze facility. MultiGen output can be in either PAL or NTSC and the cost with leads and PSU is £362.25.

Plug in and go

THE Concept Keyboard Company (0962 843322) have launched a range of videos designed to help schools install and make the best use of their A3 and A4 Universal 2010 Keyboards.

The videos introduce and then give comprehensive instruction on how to use the Concept Universal range. There is information on how to design, produce and print your own overlays using Conform Plus, as well as an overview of the range of software available using the Concept Universal.

Fax facts

DAVID Pilling has a new version of ArcFax. Now in version 1.10, it gives two dimensional data compression, allowing faxes to be sent faster and cheaper and reducing the space needed for storage.

It is also TWAIN-compliant and supports Class 8 voice modems so your computer acts as a fax machine, answering machine and fax switch.

In addition voice, fax and data are all in one program with Zmodem for file transfer. You can also merge faxes, hold, auto print and do various other features.

The cost is £35 inc VAT but existing owners can upgrade for £12, whereas if you bought your modem from David Pilling you can upgrade free. You can contact David Pilling at PO Box 22, Thornton Cleveleys, Blackpool FY5 1LR.

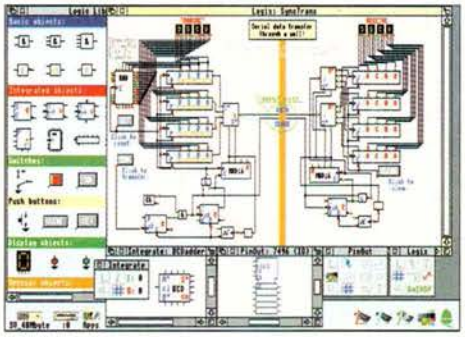
Design and simulate — digitally

A SUITE of four inter-related applications called Logix has been announced by Silicon Vision (081-422 3556). Logix comprises Logix, PinOut, Integrate and LIPLib and lets you both design and simulate logic circuits.

These are assembled using a library of basic logic gates and ready-made complex logic circuits which you can add to as you work. You can also disassemble library components to view and extract the individual logic make-up of a device.

Each library component has its own integrated circuit schematic and definable pinout linking the logic definition of the circuit to its schematic equivalent.

The assembled design can be simulated in the design window and the state of inputs and outputs is defined by colour coding. You can also place multiple *logic probes* at selectable positions, with the output going to an oscilloscope format window.



● *A suite of programs to help design and simulation*

Increased detection

RISC Developments (0727 843600) have released version 1.5 of the OCR package Sleuth. Enhancements include an increased range of recognised fonts and they report that most *non-stylised* fonts in common use can be converted with a high degree of accuracy. More importantly perhaps is the recognition of bold text.

Sleuth now also supports Twain which allows images to be scanned directly into the OCR software and Twain drivers are available for a number of popular scanners from David Pilling. You can upgrade your current version of Sleuth for £5.85.

RISC Developments and sister company Beebug have packaged a flat bed scanner OCR package. This includes an A4 flat bed scanner – the Cannon IX-3010 or Canon IX-4015 for colour scanning – Sleuth OCR, Image Master, Twain and optional SCSI interface. Prices start at £479.

Screen printing

WITH the advent of Acorn's new range of Risc PCs, image processing is becoming more diverse. From Benchmarc Software in Western Australia (010 619 354 5220) comes ScreenPro, a program of artwork production for screen printing.

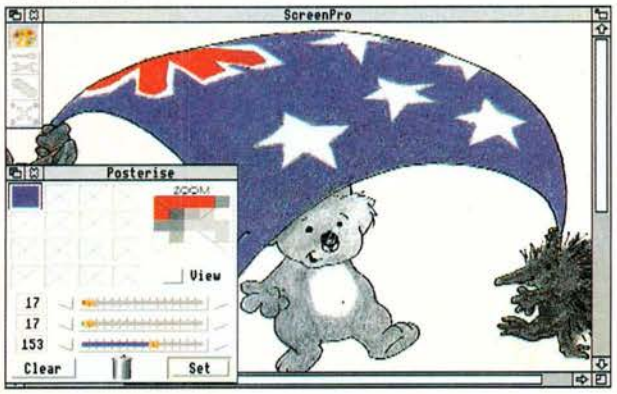
ScreenPro gives you up to 16 fast and easy spot colour separations, a simple-to-produce white base as well as full control over the bleed area including bleed width. Furthermore, there is automatic or manual placement of registration marks and a fast and easy way to posterise any image.

Tools are provided to clean and retouch images and you can print separations to size without knowing the scale factors. You can also use a low resolution viewer to examine large images.

The software has been developed with screen printers in mind and is particularly efficient at handling very large images such as a 30Mb image on an 8Mb machine for about $1000 (Australian dollars).

Benchmarc software engineer, John Le Long, reported that several screen printers have already indicated their intention of buying a complete Acorn system with scanners, laser printers and the like on the strength of ScreenPro, which is unique on any platform.

● *Exclusively designed for screen printers*



Getting the bird

ACORN has teamed up with the RSPB to help teachers integrate multimedia material into curriculum activity. As well as stimulating the use of CD-Roms in schools, it will also support the National Curriculum with a classroom activity tied to a field trip to a local RSPB centre.

The Birds promotion is an extension of the Department for Education's recent CD-Rom initiative and schools who have bought an Acorn machine with CD-Rom drive and the RSPB Birds CD-Rom will receive a free RSPB voucher for £50, redeemable against a class visit to an RSPB reserve.

Hold the front page

THE winning schools in the Acorn-sponsored TES Newspaper Day have been announced. 340 schools took part in the competition to write and design a newspaper which had to be completed in one day using live news targeted at a real audience.

With over 12,000 students between 8 and 19, the competition was divided into three categories: Primary, Secondary and International.

The Primary winner was The Churwell Primary School in Leeds with *The Chirpy Times*, the Secondary section went to Chaucer School, Canterbury for *The Prospector* while the International winners were the pupils at Hanns-Seidel-Gymnasium in Hoesbach, Germany with *The Hoesbach Sun*.

The winning schools were presented with their Acorn Risc PC 600 at the House of Commons and the runners up each received two Pocketbooks and an A-link.

You can see the winners at the Live '94 Show in September where they will be producing the daily newspaper for this consumer and electronics games show.

A3010

This machine may be upgraded by easy to fit, plug-in components. No soldering is required.
A3010 extra 1Mb (2Mb total) - **£38**
A3010 upgrade to 4Mb - **£145**

Hard disc upgrades

Prices are for complete systems, including metalwork, power supplies, controller card and cables as appropriate. No specialist knowledge is required either for installation or use. Supplied with a year's warranty.

A300 and 400/1 series machines

	Internal	External
200Mb IDE	£270	-
240Mb IDE	£290	-
330Mb IDE	£399	-
120Mb SCSI	£299	£374
290Mb SCSI	£360	£435

Larger sizes available on request. Please ring for a quotation. The A305 and A310 require a backplane, and this should ideally be a 4-layer version.
Fast 16 bit SCSI card - **£100**

A3000 & A3010 internal drives

80Mb IDE	£215
120Mb IDE	£275
240Mb IDE	£399

(These drives include an integral user port).
Prices for external A3000 drives are the same as those for the 300 series machines shown above.

RISC OS 3 £72

Acorn's new operating system for their range of RISC computers. The upgrade consists of four replacement ROMs, utility discs, and manuals.

RISC OS 3 may be used on the A305, A310, A440, 400/1 series, A3000, 540 and A5000.

RISC OS 3 **£72**

RISC OS 3 class pack (10 ROM sets) **£339**

A305, A310 and A440 owners please note. You will need to install the RISC OS Carrier Board in order to use RISC OS 3. The RCB may be used with any version of RISC OS. This carrier board is compatible with memory boards, ARM3 upgrades and does not in any way obstruct expansion cards ("podules"). Unlike some other adaptors, the IFEL RCB allows ROMs up to 8Mbit to be used. (RISC OS 3 chips are currently only 4MBit.)

RISC OS Carrier Board **£21**

All products fully guaranteed. Many products also carry our 14-day money-back guarantee. Please phone for details.

A300 series upgrade column. 2Mb £89, 4Mb £119

Memory expansion

Extra memory is without doubt the most worthwhile addition to any A300 series machine. Some programs won't even run with only 1Mb, and 2Mb is a bare minimum. Certain applications, desktop publishing for example, benefit from a minimum of 4Mb.

1Mb to 2Mb - £89 **1Mb to 4Mb - £119**

Compatibility. The memory is detected and used by the machine automatically, so there are no special commands needed. Works with both RISC OS 2 and RISC OS 3.

Fully compatible with ARM3 upgrades, backplanes, hard discs etc. This upgrade is supplied on just one, compact board measuring only 195mm by 46mm. Four-layer circuitry reduces electrical noise for trouble-free operation. A copy of the fitting instructions is available free of charge.

Is there any other 300 series RAM upgrade which has been available for as long as this one, and which has the same reputation for quality and reliability? No.

4-slot backplane with fan **£59**
(This is a four-layer circuit board)

Combination deals

4Mb with MEMC1a, self-fit **£143**

Collection of your computer, installation of 4Mb of RAM, MEMC1a, and RISC OS Carrier Board, testing, full guarantee, and return delivery **£165**

As above, but with 2Mb of RAM **£135**

(Add £69 to have RISC OS 3 fitted at the same time.)

A5000 memory

2Mb memory board (4Mb total) **£74**
A compact board measuring just 104mm by 37mm, this design fits vertically in your machine. No soldering required. Unlike larger boards, there is no need to remove the disc drive. Four-layer design as specified by Acorn.

8Mb RAM - see "New release"

Fitting service

Many upgrades are straightforward to fit (eg A3000 memory), but others require expertise. We can provide a fitting service for all of our products, usually with a three day turn round. Please ask for a quotation.

Supply and fit ARM3 to A3000 - **£144.**

A3000 upgraded to 25MHz ARM3 and 4Mb of RAM. Includes carriage. **£243.**
(While ARM3 stocks last).
A310 upgraded to 4Mb RAM, MEMC1a and RISC OS Carrier Board. Includes carriage. **£165.**

Free price list available upon request.
Prices exclude VAT.

New release
A5000 8Mb RAM upgrade £259

This upgrade expands a 4Mb machine to 8Mb. Four-layer PCB's are used together with gold-plated connectors for maximum long-term reliability. The two memory controllers included in the upgrade are precision matched to guarantee correct performance.

The upgrade is easily fitted by the user on the newer 33MHz A5000 machines which have the existing memory controller in a socket. Earlier models require the installation of a socket on the motherboard by a dealer.

4Mb to 8Mb upgrade **£259**
Collection/fitting service **£45**
Please phone for details of trade-in allowance.

A3000 column

Memory. An easy to fit and reliable RAM upgrade. **Gold plated** connectors ensure long term reliability. This upgrade uses a four-layer circuit board as recommended by Acorn. No soldering needed.

1-2Mb upgrade **£60**
1-4Mb upgrade **£109**
Trade-in offer. When purchasing the 4Mb board, we will give an allowance for any A3000 2Mb memory card. Please phone for details.

Hard discs - see separate section.

Coming soon....
8Mb memory system for the A3000.

RAM for 410/1 & 420/1

Upgrade from 1Mb to 2Mb - **£40**
Upgrade from 2Mb to 4Mb - **£80**
Upgrade from 1Mb to 4Mb **£120**
Supplied with full instructions.

This month's specials

25MHz ARM3 - **£89**
2Mb upgrade for A3000 - **£39**
(This is a 4-layer board using gold plated connectors. Offer subject to availability - Please ring before placing an order)

IFEL Ltd
Educational and quantity discount available.
34 Culver Road, Saltash, Cornwall PL12 4DR. Tel (0752) 847286. *Fax (0752) 840029*

VISA

ONE STOP STORAGE

HARD DRIVES

A3000 / A3010 WITH INTERFACE

_60MB	15MS IDE	179
_80MB	15MS IDE	199
120MB	15MS IDE	249
170MB	15MS IDE	299
210MB	15MS IDE	349
250MB	15MS IDE	389

A3020

_60MB	15MS IDE	99
_80MB	15MS IDE	139
120MB	15MS IDE	219
170MB	15MS IDE	289
210MB	15MS IDE	329
250MB	15MS IDE	369

The above Drives are complete with all fittings

A3xx/4xx/4000/5000

CONNER

IDE

210MB	17MS IDE	165
250MB	15MS IDE	189
340MB	15MS IDE	209
170MB	16MS SCSI	179
340MB	15MS SCSI	239
540MB	12MS SCSI	399

MAXTOR

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Screen watch

Chris Drage takes a look at a range of monitors you could add to your Acorn system

I WONDER just how many readers have considered changing their monitor for a clearer crisper one, or having seen a PC super VGA job wondered why their Acorn monitor doesn't resolve text and images as well?

Firstly, let's get one thing straight. Your Acorn A-series has just as sharp a display output as any PC, it's the monitor that's not reproducing it too well.

Perhaps you have wondered why your Acorn dealer won't sell you a computer and a monitor of your choice separately? There are reasons for both of these idiosyncracies, each rooted in history.

Firstly, Acorn have always been concerned with backward compatibility, especially since they launched the first Archimedes, as many of their 8-bit customers despaired with the lack of compatibility with their range of 8-bit micros.

Acorn's range of screen modes has been one of its strengths, and to maintain compatibility with earlier mode-dependent software the bundled monitor has usually been one with a lower bandwidth.

Lower cost has also been a factor – remember Acorn's biggest market are cost-conscious schools. To provide a compromise, a multiscan monitor AKF18 with 0.39mm dot pitch has been been available for some time which can scan down to 15.625kHz necessary to display Modes 12 and 15.

For example, anyone who has done any DTP work will appreciate the gain in area offered by Mode 39 displayed on this monitor. Alternatives were available for the earlier Archimedes series. For example, the Taxan 770 Plus proved an excellent choice for A300/400/3000 computers, with an arguably better display than the Acorn-badged equivalent multisync.

I have used one successfully with an upgraded R140 computer for years now, further confirming this company's reputation for reliability. Although I don't condone Acorn's policy of only selling computers with monitors, I can understand why they do it, as demonstrated to me by one school.

They had A3000 computers and were dismissing them out of hand and would not be purchasing any more as, "Their display was far inferior to other computer systems." I was amazed to discover that each one was being run with green and amber screen monitors which had been bought for them by their L.E.A. They weren't even aware that the A3000 was a colour computer. Extreme as this case may be, you can understand Acorn's dilemma.

Accessing SVGA

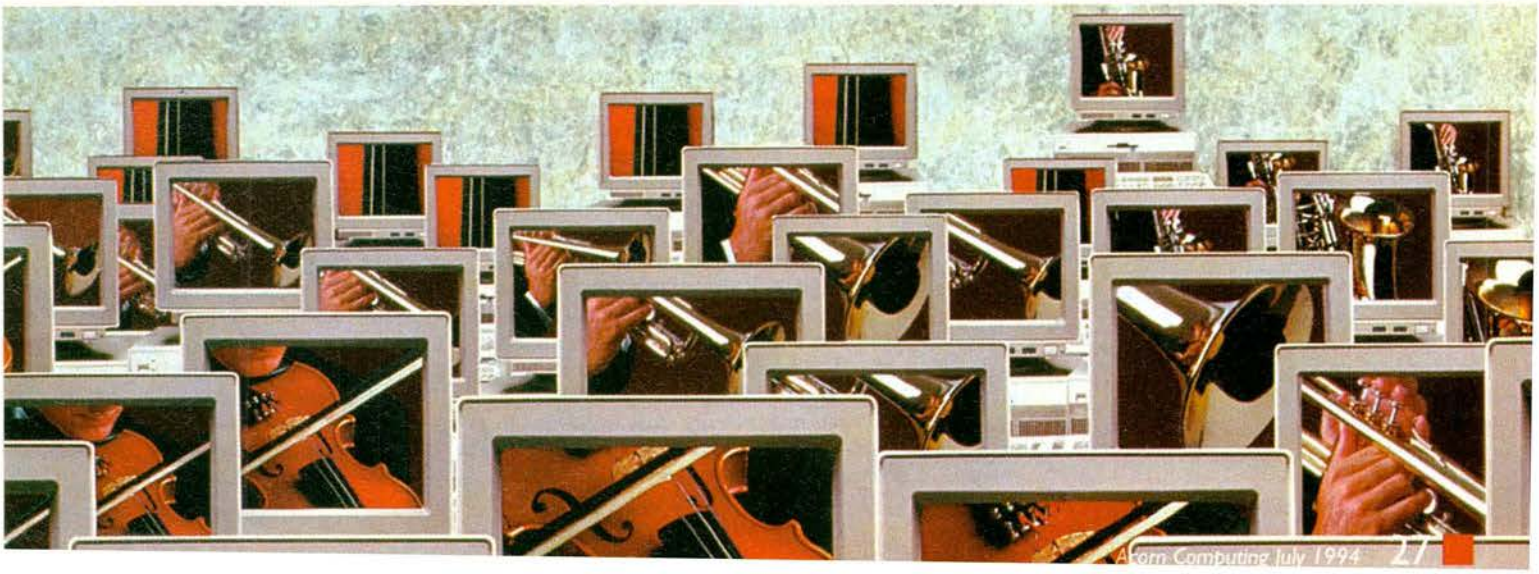
The Archimedes range – not the Risc PC which is in a class of its own – supports several SVGA modes (monitor type 4): Modes 27 and 28 have 640x480 pixels in 16 colours and 256 colours respectively, while Mode 31 provides more screen area with 800x600 pixels in 16 colours.

All of these offer far superior clarity and definition than any other mode. However, the catch is that to display them you need an SVGA-type monitor.

What features should you look for when deciding on a replacement monitor? High on my list of criteria are these points:

- Compliance to low radiation emissions standard like MRP II
- Sharp image over the whole screen, with ability to vary the contrast/brightness to cope with ambient light conditions
- A non-reflective screen
- Good definition over the whole screen with no distortions near the edges of the screen
- Ability to adjust the picture to fit at least 90 per cent or more of the whole screen area
- Tilt and swivel stand
- A range of screen controls which are easy to reach and easy use
- Good screen geometry with little or no distortion at the corners

As always it is best to look at what people are using at shows, courses, user group meetings and so on, to get a wider appreciation of what's available. Unfortunately, most computer shops only have ➤



➤

demonstration models connected to PCs.

When you have decided on a model or type you must shop around for a good deal. Some companies are even beginning to bundle SVGA monitors with A3010 systems. Castle Technology, for one, have a most attractive deal with a hard disk-based A3010 and Samsung Syncmaster 3 monitor.

Most modern SVGA-style units come complete with an attachable tilt and swivel stand, a non-reflective screen, built-in data lead, a separate mains lead and manual.

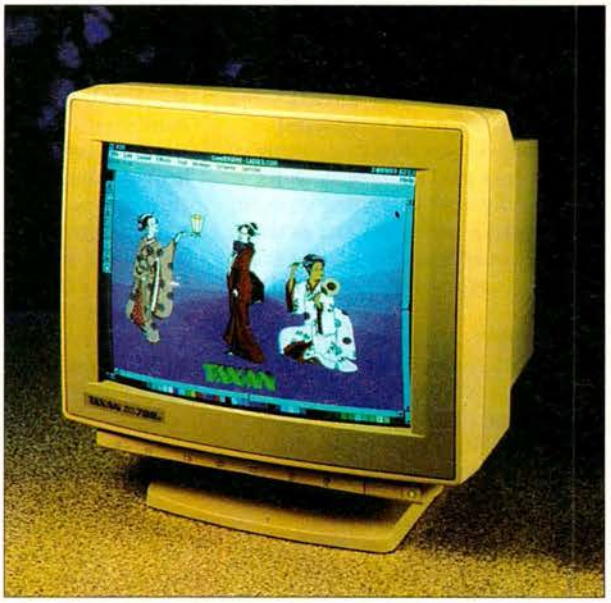
Almost all conform to the PS/2 type with three rows of pins in the data cable plug – it is worth noting that these will not fit or work with the older A300/400 series, A540 and A3000.

Handy controls

Some companies will provide adaptor cables and VIDC enhancers for the older machines, but all work with the newer A3010/20, A4000, A5000, A4 and Risc PC models and indeed all the monitors below were tested with one or more of the computers in the range.

The controls you get are almost standard as well: On/Off, Brightness, Contrast, Vertical and Horizontal size and position. These are, without exception, front-mounted for convenience, which is a great improvement on the older RGB TTL colour monitors which tended to have most controls hidden at the rear.

● *The popular Taxan*



The list of SVGA monitors described here is not exhaustive and they represent only a portion of the many makes available.

Realising the need to meet the demand for higher specification VDUs, Acorn have grasped the nettle and commissioned Microvitec to design and make an SVGA 14in, multiscan monitor called the AKF50.

It features a separate tilt and swivel stand, front, roller controls, a non-reflective screen and with a scan rate of 15-38kHz and a dot pitch of 0.28mm, the results are impressive indeed. Furthermore, the AKF50 is the only one on test that can cope with Modes 12/15 without resulting in a letter box display.

Microvitec have built-in relays which audibly switch the monitor over to these modes, displaying them as a lower resolution monitor would, in full screen mode. As you might expect, VGA and SVGA VESA standards are supported as well. The monitor has been built to the most demanding Swedish radiation emission standard MPR-II.

Microvitec have been in the business for a long time now and have done their work well, designing a superb SVGA monitor which, if their earlier products are anything to go by, should prove to be a most reliable unit.

I have to add here that I have used a Microvitec 1450, BBC B monitor in my classroom for 11 years now, without a hiccup. That's reliability! For certain, with the AKF50, Modes 39, 28 and 15 never looked better – truly a monitor for all seasons.

The lowest cost, budget SVGA monitor I could find was the Samsung Syncmaster3 which offers excellent value for money. Although it does not score highly in any individual feature, the sum of its parts offers such an improvement over the standard Acorn AKF17 monitor that it represents a good alternative, especially if you decide to purchase it bundled in the Castle Technology A3010 package.

Reliability

It has all the standard controls front-mounted as rollers and knobs, a 14in non-reflective screen with 0.28mm dot pitch and a bandwidth of 45kHz. On the minus side MPR-II compliance is only offered as an option, so it's not as health conscious as some of its competitors and I found that it could not match Acorn's AKF50 for contrast and definition. I also wonder how reliable these monitors might be in the long term.

However, if you can live with these shortcomings there can be no doubt the Syncmaster3 is the most cost-effective means of obtaining SVGA capability.

Phillips are another company whose monitors have found their way into many homes. Again I can vouch for reliability having had an 8833 model for many years. However, they have a range of lower cost, 14in autoscan SVGA, monitors (4CM-42xx series) and the new

SVGA compatibility

Most SVGA monitors have a much higher resolution than the standard Acorn monitors – not including the new AKF60 and AKF85 models for the Risc PC. Most mode-independent software will run on SVGA monitors without any problems at all. However, some software titles do not run on a monitor configured to SVGA.

Additionally, there are some that only run in SVGA letter-box Mode 12. Letter box-modes can be *stretched* to fill the full screen, however some SVGA monitors do not have a vertical height adjustment – these monitors should be avoided.

Castle Technologies produce a text file of SVGA unfriendly and letter-box mode titles.

This list will be continually updated and maybe freely copied. As there are so many Acorn software titles this list relies on feedback from users. If you want to add to this list then contact Jack Lillingston at Castle Technology (0728 621222).

Brilliance range.

I evaluated a 4270 14in, low-emission monitor which complies to the MPR-II standard. It has a full set of front-mounted, rollercontrols, tilt and swivel stand, 0.28mm dot pitch non-reflective screen and, of interest to multimedia buffs, a stereo audio input and speakers for CD-Rom applications.

It can scan at 30-58kHz, which appears better than both the Acorn and Samsung models but translates in practice to being about on a par with the AKF50. It could display eight point text at 100 per cent in Impression quite well.

Overall, the 4270 is an unremarkable SVGA monitor which should appeal to both the cost and health conscious. However, for multimedia applications it deserves serious consideration. The more discerning DTP user should look to the Brilliance 1520 (15in) or 1720 (17in) models.

Taxan have always been tops in my book when it comes to monitors and their Multivision 788LR 14in auto-scanning unit only confirms this view. Its 0.28mm dot pitch, non-reflective, high-contrast tube resolves a picture which can only be described as a joy to behold.

It's scanning rate of 30-50kHz and more than 65MHz bandwidth helps to ensure the sharpest of images. It has a full range of front-mounted, roller controls, an additional auto-size control, a voltage selector switch and three presets.

It resolved eight-point text extremely well and was the best of the 14in monitors on test. It may cost a little more but to my mind the MV788LR is an SVGA monitor you won't ever regret buying.

Turning now to larger units and in particular the new 15in, FST types. Flat Square Tubes with 0.28mm dot pitch can display more on-screen information, edge-to-edge with improved resolution and clarity.

As their prices fall from the £500-£700 bracket they will undoubtedly become the new standard and represent an excellent solution for serious DTP users. Panasonic TX-TI1537 Panasync/Pro3 and Eizo FlexScan F340i-W exemplify the attributes of this type of monitor.

Ergonomic

The Panasonic is a truly stylish, *ergonomic* monitor with a tilt and swivel stand, front-mounted controls – including a colour *temperature* control which can give a bluish cool-tinted screen or a warmer yellow-orange hue depending on whether it's a grey winter's day or not – and a 15in, FST, non-glare screen. A 0.28mm dot pitch and a bandwidth of 30-64kHz virtually guarantees a superbly sharp display.

In addition, the edge-to-edge picture sizing offers about 30 per cent improvement over most 14in monitors. All functions and settings can be stored in one of 13 available user-defined presets and an additional 13 factory presets mean you can set it up to a wide variety of display requirements.

All controls/settings are digitally stored under microprocessor control and your preferred computer/mode/viewing settings will always be available at switch on. It is a healthy beast as well, conforming to the MPR-II as well as EEC and BS standards.

The Eizo F340i-W, too, meets MPR-II and all other European standards for radiation emissions and is impressive in every department. To my eyes it has a slightly better contrast and sharpness than the Panasonic.

It has a full range of functions accessed by front-mounted, buttons which are microprocessor controlled with presets. So like the Panasonic, you can optimise this monitor to suit your working requirements and store the settings.

The 15in, FST non-reflective screen with its 0.28mm dot pitch and 27-62kHz bandwidth provides a crystal clear display. The Eizo also has edge-to-edge adjustment optimising the picture area and over the test period this monitor definitely was the easiest on my eyes over a long period of writing.

It resolves eight-point text at 100 per cent with clarity and colours look striking. It may cost that much more, but on test this was the pick of all the review units.

● *Monitors today nearly all have front-mounted controls*

Display monitors

Secondary and tertiary colleges will find many occasions when a large display is necessary for demonstrating software, computer presentations or CAD.

Similarly, children with disabilities may find a large display easier to use. Aydin Controls produces quality monitors from 14 to 21in in size. I chose one of their Ranger 5x17 series as an example of what larger displays have to offer.

The review unit turned out to be a 5017 model which has a ➤

PRODUCT SPOTLIGHT

Product: AKF50
Price: £374 inc VAT (£75 inc VAT more than the normal multiscan monitor price when bundled with an Acorn computer)

Product: AKF60
Price: £381 inc VAT (upgrade to AKF85 at time of system purchase for £470 inc VAT)

Product: AKF85
Price: £1173 inc VAT
Supplier: Acorn dealers

Product: Samsung Syncmaster 3
Price: £199
Supplier: Castle Technology, Ore Trading Estate, Woodbridge Road, Framlingham, Suffolk IP13 9LL.

Product: Phillips 4CM-4270
Price: £299
Supplier: Phillips dealers

Product: Taxan Multivision 788LR
Price: £339
Supplier: Taxan dealers

Product: Panasonic TX-TI537 Panasync/Pro3
Price: £549
Supplier: Panasonic Business Systems, Panasonic House, Willoughby Road, Bracknell RG12 8FP.

Product: Eizo F340i-W
Price: £650
Supplier: Eizo dealers

Product: Ranger 5017
Price: £1,222

Product: Ranger 5217
Price: £1,084
Supplier: Aydin Controls, 1/3 Hunting Gate, Hitchin, Herts SG4 0TJ.

17in, FST, non-glare tube, 0.31mm dot pitch and a long persistence phosphor tube. The full range of picture controls are conveniently front-mounted and, sensibly, this monitor comes with a two metre VGA cable.

The Ranger 5017 automatically synchronises to all horizontal frequencies from 15.5kHz to 40kHz and therefore will correctly display all Acorn screen modes except 23, which is no loss.

It is an environmentally-kind model meeting the strict MRP-II and other European standards. There are a number of touch screens available from Aydin Controls for the 5x17 range which may be a deciding factor for people with disabilities.

The review model's long-persistence tube may be fine for image processing work but for general use I would have preferred to have seen the Ranger 5217 model which has a dot pitch of 0.28mm and short persistence phosphor tube. The 5217 is cheaper too and is the model I would direct readers to first consider.

Horses for courses

If it's a large display monitor you need, say for demonstration purposes in a classroom or lecture theatre, you should certainly sound out Aydin Controls who have taken steps to ensure Acorn compatibility and can provide a range of options to deal with all manner of display requirements.

At the other end of the scale your choice is between the Phillips 4270, Samsung Syncmaster 3 and the new Acorn AK50. If you are purchasing for school the AK50 is a sensible choice – it resolves those mode-specific programs very well indeed, yet is easily on a par with competing SVGA types. Without a doubt, an excellent choice.

A 14in SVGA monitor provides a sharper, crisper display than a multisync but can only display Modes 12/15 in a letter box . If you can live with this, either the Phillips or the Samsung monitors will please – the former is a must for a multimedia-based computer while the latter for the budget conscious.

Remember, you can always use an SVGA monitor with a PC or PC laptop. Monitor sharing may be an important factor in your choice and any SVGA unit fulfils this role particularly well.

There is no contest when it comes to the new SVGA 15in monitors. With their small dot pitch, high bandwidths and larger screen area, they leave the 14in competition far behind, although they do not come cheap – yet.

These are increasingly environmentally friendly, with lower radiation levels and better FST screens than ever before. The clarity of display means that DTP work becomes easier and more efficient.

Both the 15in monitors on test clearly resolved eight-point text at 100 per cent size in Impression Style. As a result, being able to work on documents at 80 per cent size is very convenient. The Panasonic is typical of its kind and has much to commend it.

Look out for a new range of 15in monitors from Phillips this year – they promise to be very good. The final choice is always going to be a subjective one and my overall favourite has to be the Eizo F340i-W which, to my eyes, had the sharpest display and best contrast of any monitor on test.

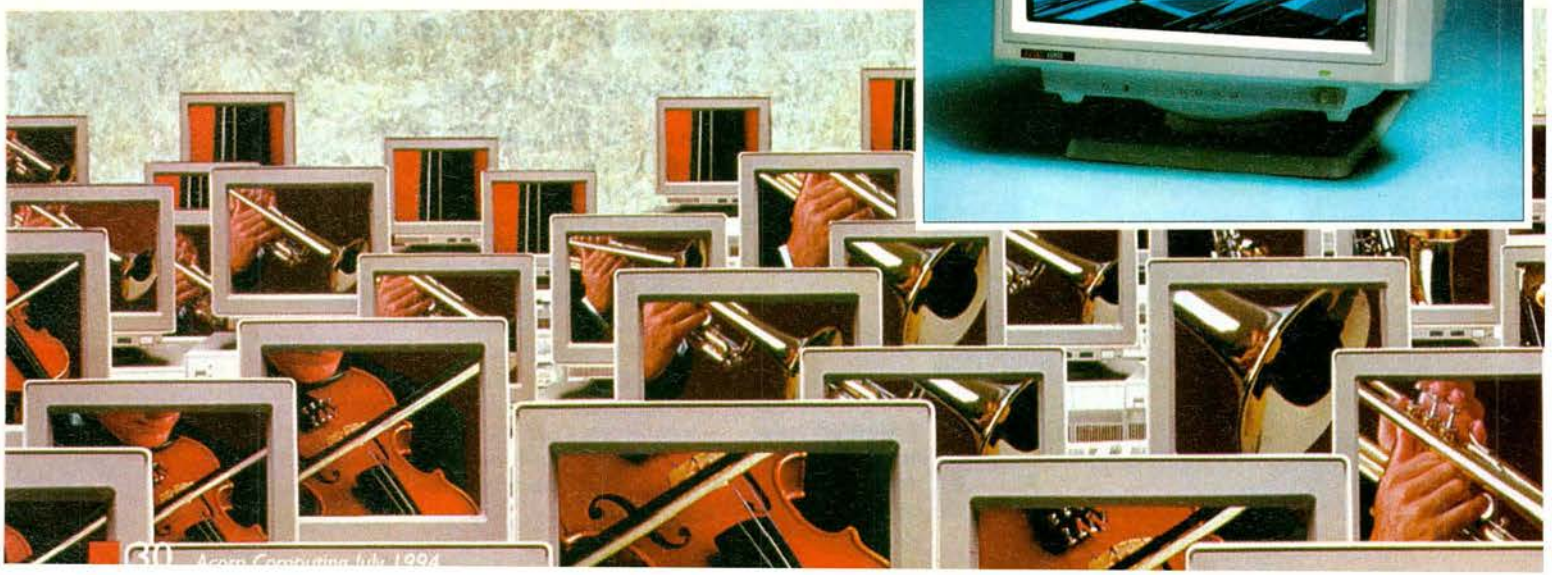
Summing up

Always there is a trade-off between clarity and cost. The FST 15in tubes with dynamic focus control will soon be standard and the 14in monitor as we know it will be history, but at present this new breed of monitors are not cheap.

As always it will be the world of Windows 3 that will dictate trends. Acorn now need to use some muscle and only sanction software which is mode independent.

Once mode-dependent software is firmly put to rest, the SVGA future will look secure for Acorn users.

● *The right monitor makes all the difference*



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Notes

The handy computer sticky pad program that allows you to create reminders on your computer for yourself or others. Just like the paper sticky note pads but fully multi-tasking and RISC OS compliant NOTES is so easy to use. You can ¤ Attach notes to specific documAEnts ¤ Set up reminders/instructions to appear at specific times, or under certain conditions The possibilities are (almost) endless. **£9.95**

Notes

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The screen protection provided by **TWILIGHT** prevents the icon bar and backdrop images burning into the monitor screen making early and expensive replacement necessary! With **TWILIGHT** running you don't just have a blank screen - you can choose from a wide range of colourful effects or on-screen reminder messages.

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News - for all Z88 owners

At last a really easy way to link your Z88 to any Acorn RISC OS computer!

Z-Link II

Dust off that trusty Z88 portable and make it an indispensible part of your computer set up. Give it a new lease of life with **Z-Link II** the superb new file transfer utility from RGSC! Using **Z-Link II** you can easily, and very quickly, transfer files to and from your Z88 and any Acorn RISC OS computer, Fully RISC OS compliant, data transfer can be by single file dragging or batch transfer.

Z-Link II - all the advantages

¤ High speed - up to 19200 baud ¤ Fully RISC OS 3 compliant ¤ Full Z88 Import/Export capability - no need for PC Link II EPROM ¤ Multi-tasking during transmit and receive ¤ Simple drag/drop operation ¤ Status window shows full details ¤ Automatically listens for Z88 whilst running ¤ Can automatically save to directory ¤ Easily configurable with save option ¤ Auto translation of Z88 filenames to RISC OS and vice versa ¤ Distinguishes between Pipedream and text files ¤ Optional translation of Carriage Returns to Newlines with text files.

A special, non-standard serial cable is essential to connect Z-Link II to Acorn computer. Cable wiring details provided on disk. Ready-made cables also supplied.

Z-Link II £24.95 Z-Link II+Cable £29.95

Special Serial Cable only: £9.00

MultiLink

MultiLink software enables you to move data between a BBC Micro and Acorn 32-bit RISC OS based machines by simply dragging it between windows using the mouse. The computers must be linked via their serial ports using a standard serial cable. **MultiLink £24.95**

Serial Cable only: £9.00 MultiLink+Cable £29.95

MultiTTX

Multi-tasking teletext software. Finds and stores up to 10 pages from any of the ITV/BBC channels for downloading later. MultiTTX, which is for use with the Morley Teletext Adaptor only, runs far faster than alternative software programs. **£24.95**

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TARGET MATHS Designed for 6 to 13 year olds, and aimed at specific educational targets, older children and adults also find these four programs entertaining and absorbing. **ELIMINATOR** A challenging way to practise tables. **NUMBER FACTS** Explore numbers and discover their properties. **SCALE FACTOR** Reading scales and rulers made easy and interesting. **SLIDER** is a computer version of Snakes and Ladders, with a difference! **£19.95**

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Arresting the senses

Rob Miller looks at approaches to bring sound to your machines and applications

UNTIL now, the only way of sampling recording sound into your computer was with a special, hardware sampling board. These range from low-cost devices that plug into the parallel port – such as the Black Box Sound Sampler from Focus IT – to more expensive cards such as ESP's SSES1600.

Thanks to a clever little program from Uniqueway, there is a new way that requires no additional hardware apart from a standard SCSI card and CD-Rom drive. If you think of the way sound is stored on a compact disc, it's not surprising to learn that it can be read just like any other data.

Put simply, *recording* or *sampling* sound from a CD is just a case of reading the relevant numbers off the disk into the computer's memory. Uniqueway's CDSampler program does just that.

Data routine

CDSampler has been written to work with any SCSI interface and most CD-Rom drives. The reason why not all drives are suitable is that CDSampler uses a special routine to read the data which some drives support while others don't.

Uniqueway say that most Sony drives should work – I used a Sony CDU-561 – but the list will grow. Check with Uniqueway before buying the program.

Running CDSampler in the usual RISC OS manner brings up the main control window with details of the attached CD-Rom drive, plus details of any compact disk that may be loaded.

A set of control icons allows you to play disks, much in the same way as Next's CD Player application, provided with CDFS. The number of tracks plus their lengths is also on view.

During the development of the compact disc, a set of rules was drawn up, commonly referred to as the Red Book, Orange Book and Yellow Book. These give strict guidelines as to the format of any compact disc and list many different types of CD.

Most people will be familiar with standard two-track (stereo) compact discs, although you might be surprised to hear that there is also a four-track standard. CDSampler automatically detects what sort of compact disc is loaded in the drive and sets itself up accordingly.

Capturing sound

Recording a sample is relatively straightforward and just requires a start and stop point for the sampling to take place between. When you select a track to record from, the details are shown in an export box which also gives the currently selected file format for saving samples. Three formats are currently supported: ARMovie, Microsoft WAVE and raw data.

Selecting ARMovie grabs the data in 16-bit, stereo ARMovie format. This can be played back using ARplayer which is included with most multimedia type packages such as Oak Solutions' Genesis. It also comes free with the new Acorn Risc PC computer.

Computer Concepts' AudioWorks is the only sound-editing package that is capable at present of editing 16-bit sound, and I found it invaluable for samples created with the CDSampler.

The Microsoft WAVE format is the most common sound format found on PCs and with it you can transfer sound samples directly to PCs. RISC OS 3 enables you to read and write directly to PC formatted disks, plus there are a number of public domain programs that will do the same job. Like the ARMovie format, Microsoft WAVE samples are saved as 16-bit stereo data.

The final format is raw data and this is included to allow easy transfer of samples from CDSampler across to other systems. With the right code it would be perfectly feasible to transfer samples from CDSampler to professional samplers such as Akai's range. A raw data sample is similar to the Microsoft WAVE format but without the special header code.

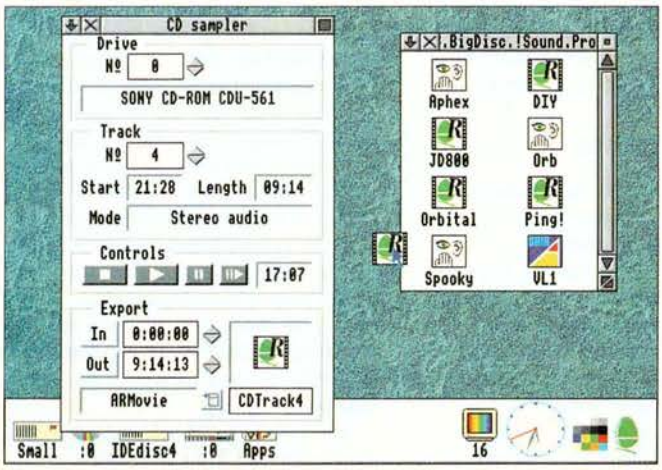
PRODUCT SPOTLIGHT

Product: CD-Sampler
Price: £25 plus VAT, plus p&p
Supplier: Uniqueway, 42 Crwys Road, Cardiff CF2 4NN.
Tel: 0222 644611
Requirements: RISC OS 3.1 plus SCSI CD-Rom drive

Starting blocks

Before you start sampling, you must make sure you have plenty of free space on your hard disk, as CDSampler uses this to store the data. Uniqueway could have written CDSampler to sample direct to memory but with one second of sound taking up 173k, this would have been a little restricting for all but the biggest of memories.

Once you've specified the start and end point, to sample just drag the file icon to the relevant hard ➤



● *The main CDSampler window including the Export box*

drive Filer window. The way in which data is stored on a normal audio compact disc means that you can select points to within a seventy-fifth of a second – or to within one frame. After dragging the file, the CD-Rom drive starts spinning and the selected choice of audio is loaded or sampled.

This process is quite simple, although it is difficult to locate a position on a disc precisely. The set of playback icons does let you pause a compact disc and then jump forward in steps of fifteenths of a second, although this is not perfect.

Professional sample CDs often have a number of different samples held in one track and it would have been useful to have some kind of method of jumping between samples.

When sampling is taking place, the hourglass pointer is displayed with the percentage time left for recording. This is particularly useful and is helpful to tell whether the computer has finished – or crashed as it did on occasion. There is a note about this in the accompanying Help file and users are warned to save any desktop work before using the CDSampler program.

Once a sample has been recorded, it can be either loaded into a program such as AudioWorks for editing, or dropped directly on to ARPlayer or MultiSound for playback.

The advantage of the last two programs is that they can play samples directly from disc and do not require the whole sample to be in memory.

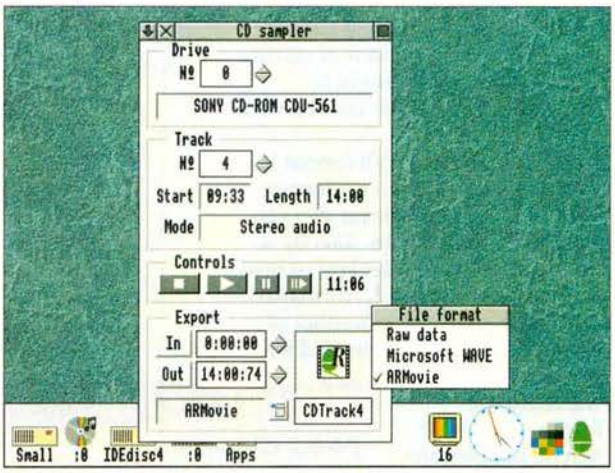
If you have space on your hard disk, it's possible to sample a complete 40-minute CD, although this would take up the best part of 173k x 60 x 40 = 405.5Mb!

In reality, you're more likely to grab short snatches of two or three seconds. These samples would therefore be short enough to load into your computer for editing.

With the right equipment fitted in your computer – such as Computer Concepts' 16-bit Lark card – the samples sound fantastic. They are in fact a copy of what is on the CD so they should. Even on a standard Archimedes with filtered, 8-bit sound output, the results are quite remarkable, especially through a suitably cranked-up hi-fi.

The new Risc PC is capable of playing back 16-bit audio – a small interface needs to be fitted inside the computer – and sound is likely (and hopefully) to be exploited more than on the older Archimedes range.

It has the power to handle all sorts of things such as direct to disk, multi-track recording as well as carrying out DSP work. Although only a gimmick at present, CDSampler could have real uses, particularly in the professional music industry where samplers can cost anything up to £3,000 or more.



● *Sampling a track with CDSampler*

Summing up

As it stands, CDSampler is of limited use. Hopefully Uniqueway will develop it further to make it more useful for say, musicians. Some kind of editing software would be useful and the ability to trigger grabbed samples via Midi would turn the package into a serious musical tool.

It's not a direct replacement for the top of the range Akai equipment and it's unlikely to be used in preference to them, but it certainly works out a lot cheaper.

If you don't have a CD-Rom drive already, this could be the perfect excuse for buying one. Having the entire back catalogue of The Times on CD is all very well, but it's much more fun sampling your favourite music and playing with the results.

Sound enhancement

ALTHOUGH perfectly capable, the Archimedes has been widely ignored as a computer for sound. There have been a number of valiant attempts at producing software for Acorn's 32-bit micros, but nothing has really taken off or established itself in the way that packages have on the Atari ST, Amiga, Mac or PC.

Acorn have never really given any support for the sound side of things and have preferred to concentrate their marketing efforts in established areas such as education.

With the emergence of special hardware for the *older* machines, plus the 16-bit capabilities of the new Risc PC range, high-quality, professional sound processing on Acorn computers looks set to become a reality.

Computer Concept's Eagle M2 card is the first of a number of products which aim to enhance the sound capabilities of Acorn computers and is a major step towards high-quality, desktop sound.

AudioWorks has been written to cater for the average and advanced user alike, and provides all sorts of tools to grab and manipulate sampled sound. It's included with the Eagle M2 card as well as Computer Concepts' 16-bit Lark sampler, but can also be bought on its own.

Sampling tools

There are two main functions of AudioWorks – grabbing (or sampling) sounds and editing/processing sounds. On its own, it can only be used for the latter, but with a suitable expansion card, it provides a collection of sampling tools for grabbing from any suitable audio source.

At present, AudioWorks can be used with Computer Concepts' Eagle M2 and Wild Vision's Lark cards. Other samplers can be added to the list simply by providing the necessary driver so, for example, Clares' Armadeus card will be able to make use of it.

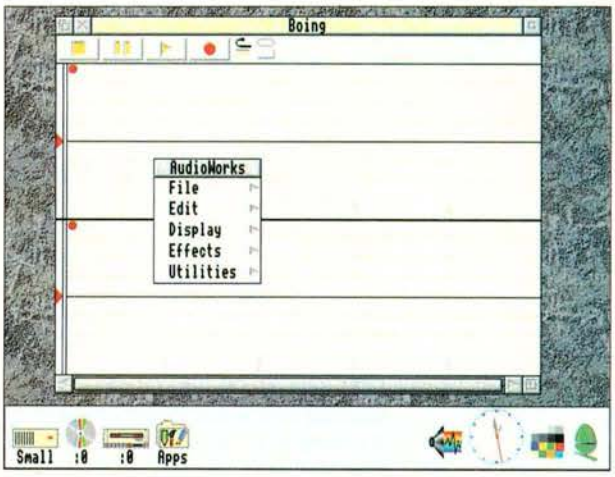
AudioWorks installs itself on the icon bar in the usual RISC OS manner. At this point, you can either load an existing sample file, or create an entirely new sample.

When a sample file is loaded, AudioWorks automatically checks to see what kind of sample it is and, if recognised, loads it. AudioWorks can deal with four distinct types of sample: Logarithmic, linear signed, linear unsigned and µLaw log.

If you don't understand or recognise these terms, don't worry. Needless to say they cover the majority of samples found on computers today.

The two logarithmic sample types are capable of 8-bit resolution

● *The New Sample window*



● *The main AudioWorks window icons*

whereas the two linear sample types can also handle 12 and 16-bit information.

AudioWorks is therefore capable of recognising many types of sample file and is the first commercial sound-editing package capable of handling and processing 16-bit, stereo sound.

As well as its own AudioWorks format, it can load: Acorn Replay Movie, Amiga IFF 8SVX, Armadeus, Creative Voice File (.VOC), DataVox, Digital Symphony sample file, EMR SoundSynth, Microsoft Wave (.WAV), RISC OS Tracker sample file, Sun/NeXT audio (.snd or .au), voice module and raw data.

AudioWorks is also capable of extracting samples from RISC OS Tracker, Amiga/IBM SoundTracker and ProTracker music files. This extensive list means that you now have access – once you have the files on disk – to literally thousands of samples.

If a file is not recognised by AudioWorks a warning is displayed, giving you the chance to load the sample or discard it. If you choose to load it, the sample is treated as *raw* data and AudioWorks resorts to a set of defaults.

If you have a suitable expansion card fitted in your computer, you can create a blank sample into which you can grab a sound. Clicking on the AudioWorks icon brings up the New Sample window which allows you to set up the various parameters – such as sample type – to create a new file.

Once you've set up the correct parameters, grabbing a sound in AudioWorks is simple. A set of icons give controls similar to that of a tape recorder and recording a sample is just a case of clicking on Record.

As long as you have enough space in memory, AudioWorks will then display another window showing the parameters you have previously set up.

At this point you have the option of changing any of the parameters, and/or Pressing the Record button to grab the sample. You can also set controls for:

- Using all the free memory for recording – the previous sample time is ignored in preference to the new setting
- Continuous recording – the computer samples continuously overwriting the existing sample until Stop is pressed,
- Best quality – some of the slower Archimedes computers, in particular those powered by ARM2s, require uninterrupted access to the processor to achieve full sampling rates. This option temporarily suspends all other activities while sampling is taking place.

Sound trigger

As well as manually starting the recording process, you can also set up a trigger value to set off the sampler. You might, for example, want to record a small piece of speech. Rather than try to time everything, you can make AudioWorks only start recording when it *hears* a sound. This saves a lot of time and space and is a particularly useful feature for such work.

When you press Record, a vertical line scans across the blank sample window. The incoming sample is displayed in the window as a wave form as the sound is sampled. If continuous sampling has been set, the line wraps around the window and continues to scan from left to right until the Stop button has been pressed.

One of the hardest things to get right is the incoming sound level. Too low and you get an inaudible noise, too high and the sample distorts.

AudioWorks has two tools to help you get the correct sound level – a spectrum analyser and an oscilloscope. Both are shown in separate windows in which are displayed graphical representations of the current sound being played or sampled.

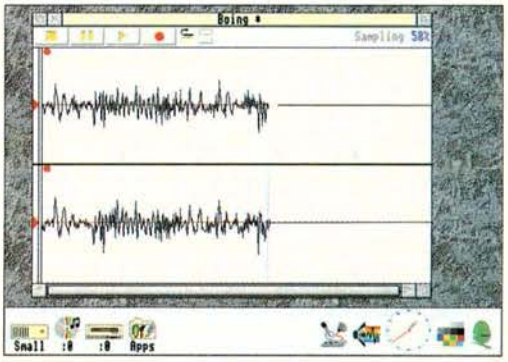
The spectrum analyser window acts much in the same way as a sound level meter on a hi-fi system. A group of bars are used to show the level of the different frequencies that make up the sound. The oscilloscope window provides a real-time display of the current sound as a waveform. Although there are no calibration marks on either of the displays, it's easy to see when incoming sound might be too low or too high.

Perhaps the easiest way I found ➤

PRODUCT SPOTLIGHT

Product: AudioWorks
Price: £57.57 (inc. VAT) or free with the Eagle M2 card
Supplier: Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX.
Tel: 0442 63933

● *The main AudioWorks and record windows*



● *A sample being recorded*

➤

to get the sound level correct was to set AudioWorks to continuous sampling and play some music while the spectrum and oscilloscope windows were displayed. The volume can then be adjusted until the two windows display an *average* level.

Editing a sound in AudioWorks is similar to the way in which you might edit text in a word processor. A set of tools are provided including cut, paste and copy.

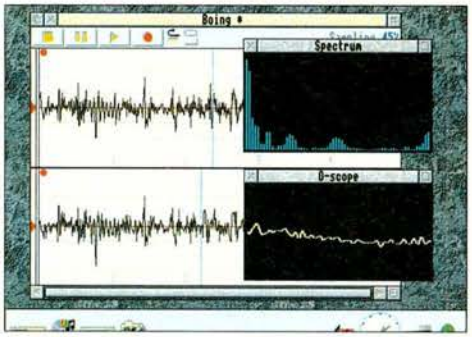
Moving the front of a sample to the end of it is just a case of marking the section to be moved, positioning the cursor at the end of the sample, and then moving the marked block. Most of the process is controlled with the mouse and menus, although key short-cuts are provided to speed things up.

Editing tools

It would have been even easier if AudioWorks had an additional button-bar, similar to that used by Impression Style. This could provide instant access to editing tools, removing the need to use menus. A drag and drop editing system would further increase the ease of editing. Perhaps these features could be incorporated into AudioWorks2?

The main AudioWorks window is calibrated in steps of one second. Editing sounds accurately at this scale can be tricky, especially when you have to position the cursor by hand using the mouse.

A zoom tool gets around this problem by enlarging the current window by up to (and just over) 15,000 per cent. At this scale, it's possible to cut and paste minute slices of a sound, even down to individual sample bytes.



● *The main AudioWorks, plus the Spectrum Analyser and Oscilloscope*

Sound effects

As well as editing tools, AudioWorks provides an extensive selection of effects that can be applied to sounds. Samples can be amplified, reversed or have echo added. They can also be extended by adding *blank* data. High and low frequencies can be removed from a sample by means of the Filter tool.

Resampling a sample will reduce the size of it while maintaining pitch. This can be useful for fitting memory-hungry samples into less space, although there is a trade-off with the quality.

A Ramp tool makes fading a sample in or out very easy, whereas the Envelope tool provides far better control over the amplitude (volume), pitch and stereo position of a sound.

Although it's a very powerful tool the Envelope option is easy to use. Selecting it displays a new window showing the current sample. An envelope is drawn on top of the sample and is simply a series of points joined together by straight lines.

An envelope starting from zero, rising to x2 and then dropping to zero could be used to fade a sound in and out, increase and decrease the pitch, or move a stereo sample from left to right.

A selection of pre-designed envelopes are provided with AudioWorks for effects such as cross-fades and pitch-bends. You can also save your own envelope designs to disk for later use on other samples.

With a little practise and experimentation, the envelope can soon prove to be an indispensable tool and is one of the main features that makes AudioWorks stand out from the rather limited competition.

Comprehensive

On its own, AudioWorks provides probably the best and most comprehensive sound editing tools available for Acorn 32-bit micros. With a suitable sampler it's capable of grabbing and processing high-quality digital sound.

There are a few other packages that provide sound-editing capabilities, but none of them in my mind are as easy to use or support such a useful set of tools.

AudioWorks certainly has a few weak points such as no Midi support and there is still room for improvement. I would, though, recommend it whole heartily to anyone interested in grabbing and manipulating sound samples.

The new Risc PC 600 series of machines are capable of audio play-back – with a small hardware addition – at up to DAT quality (48kHz) and packages such as AudioWorks are essential if any serious use is going to be made of this feature.

To date, the sound capabilities of Acorn's 32-bit micros have been vastly under-exploited. Let us hope that AudioWorks is just the first and not the only *professional* audio package for RISC OS machines.

AudioCtrl

AudioCtrl is a small utility supplied with AudioWorks that strangely enough, controls the audio system in the Archimedes. On its own, it allows you to playback samples and change settings, such as the sample playback buffer size.

If you have a suitable sampler board fitted in your computer, AudioCtrl provides a special mixing window that allows you to alter the different levels of sound going in and out of the computer.

Both the EagleM2 and Lark cards have sound out and AudioCtrl lets you to set any one of them – as long as they are fitted – as the default playback route.

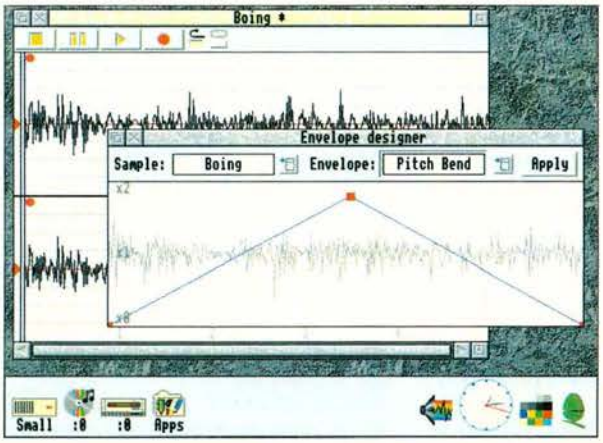
A third use for AudioCtrl is to let you link samples to various Wimp events. Sounds can be loaded and stored in ram. For example you can set a sound to play whenever a window is closed.

There is quite an extensive list of events and it's very easy to fill up your computer's memory with samples, leaving little space for more serious applications.

It can be quite fun though, to have your computer say *thank you* each time a particular action takes place – much in the same way as you can on an Apple Macintosh.

Error messages can be quite technical at the best of times for the inexperienced user, and this part of AudioCtrl could also have a more serious use in special needs or educational scenarios.

You could, for example, sample the message *Disk drive empty* and get the computer to play it back every time it couldn't find a disk in the disk drive.



● *Creating an effect envelope in AudioWorks*

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540Mb IDE	12ms Cache (~1.5Mb/s)	£399

The above include all cables, screws and instructions.
All the above drives are Connor as used in the RiscPC

A300/A400 Series Internal (IDE)

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340Mb	14ms Cache (~1.2Mb/s)	£309
420Mb	14ms Cache (~1.5Mb/s)	£359
540Mb	12ms Cache (~1.5Mb/s)	£479

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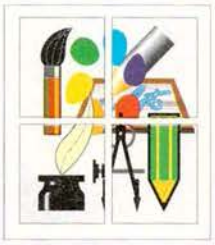
For other storage devices please refer to Hard disc/ Syquest section below.

QuickTile v1.01 £25+VAT



Up until now it has only been possible to print posters from Draw & Sprite files. Now with QuickTile you can create posters from ANY RISCOS application, including Impression. Simply enter the size of poster required & select PRINT from the application! QuickTile does the rest, printing each tile with crop marks and tile references.

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ARM610, 4Mb DRAM, 1Mb VRAM, 210Mb HD, HD floppy, AKF60 Monitor

RiscPC 9MHD420 £1599

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A4000 2MHD80/AKF40 System	£830

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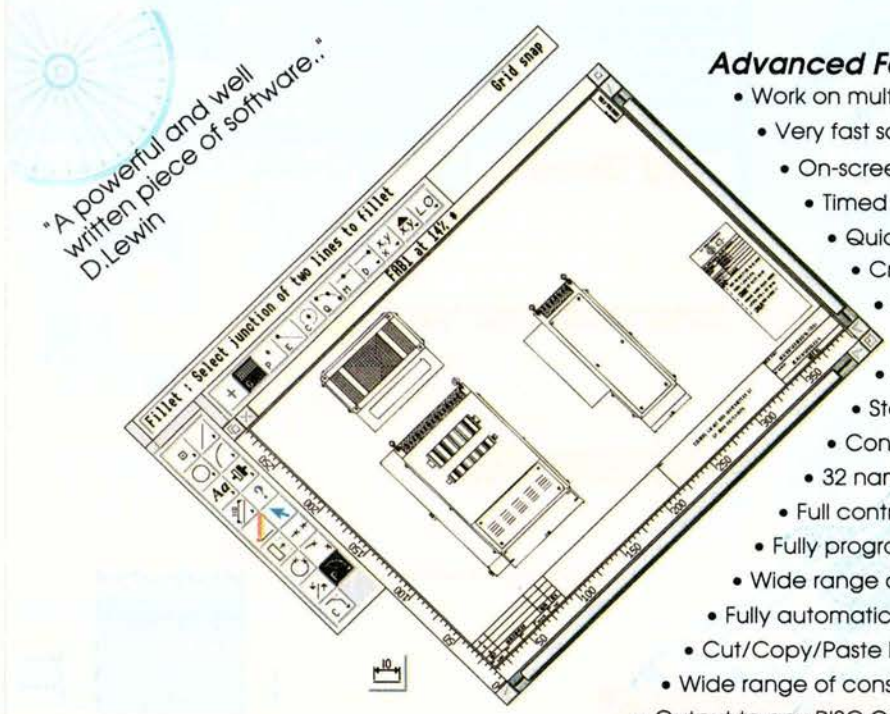

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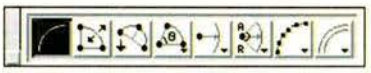
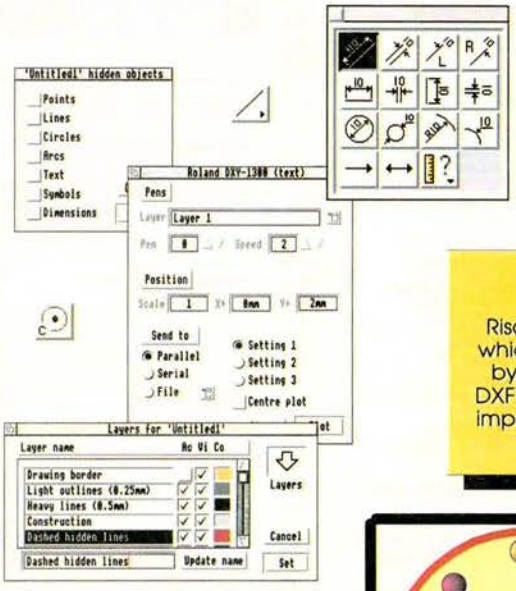


The Arc Toolbox



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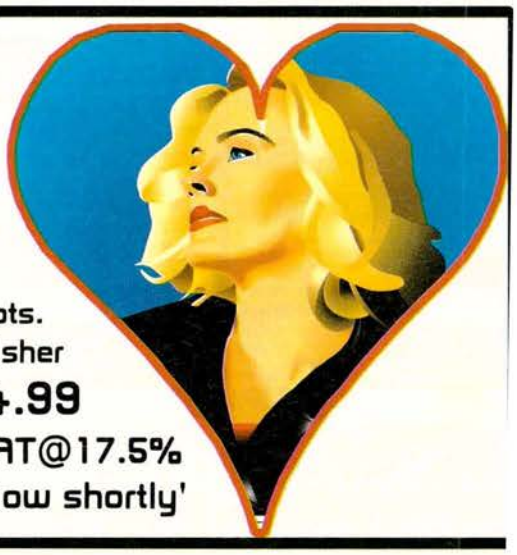

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   - **b** Trinity, Homerton, Corpus
   - **c** Anwen, Folio, Jotter
2. What is the maximum number of files you can have in one ADFS E directory?
   - **a** 77
   - **b** 100
   - **c** 31
3. Leading has to do with:
   - **a** The space between letters
   - **b** The space between lines
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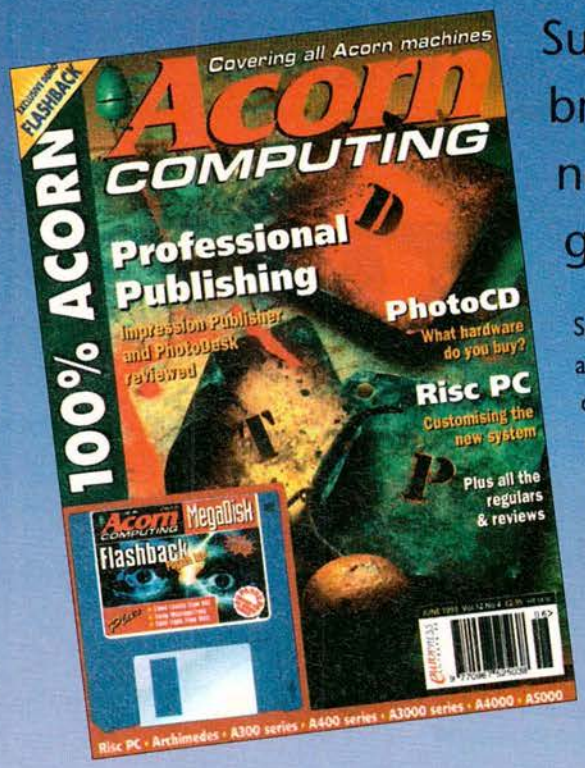

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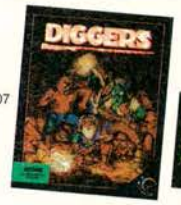

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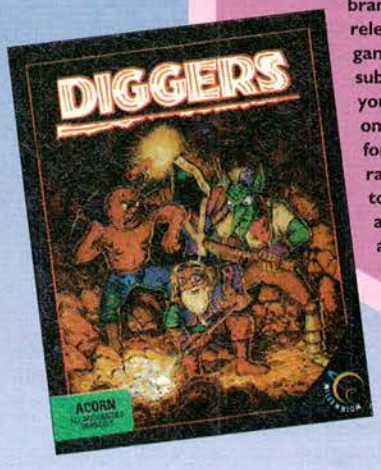

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Convincing a wider market

Baz Racon recounts a tale of industry standard tyranny

LITTLE did I realise when I purchased an Acorn Electron for my then seven year old daughter that I would become an *ambassador* for Acorn Computers, expounding their virtues at every opportunity.

No, I am not a computer bore, nor am I into programming. I am however very much a user, who has learned about computing from magazines, such as *Acorn Computing*, self teaching as I go – I am still learning.

My story involves the introduction of Acorn computers to the business world, using somewhat devious means to thwart the attempts of the *IBM* lobby.

I am a senior manager in a large public company. The company made a decision, some 10 to 12 years ago, to standardise their computing equipment. That standardisation would be purely IBM equipment, not clones, look-alikes or other lesser PCs, but pure IBM-badged computers.

Since that time, the IT section has been beavering away merrily, trying to re-invent the wheel, writing their own software and falling down badly. Service has been poor and employees started asking why we were lagging so badly behind other industries in our computer-aided functions.

About three years ago I was put in charge of a section which, among other things, was tasked with producing reports which were based on statistics. By this time I was the proud owner of an A3000, with 2Mb of memory – now 4Mb – a Citizen Swift 24 colour printer, an HCCS HardCard45 and a Vision colour digitiser.

Imagine my reaction when I walked into the office to see the staff drawing graphs for inclusion in the reports using pencils, rulers and graph paper. "My goodness", I thought, "This section really is in the forefront of the technological revolution." Not a computer in sight – not even a PC.

Needless to say, things had to change. The IT section did not have the funds or resources to assist. The statistics, which are maintained on a mainframe, were pumped out on endless sheets of wide carriage paper.

Even the totals were not being compiled by the mainframe, the staff used pocket calculators. I kid you not. This was the pits.

Putting in the technology

I decided to show my bosses what *proper* computers can do. I arranged for the typing pool to type the report text into their PC's and save it in ascii format. I then arranged for the mainframe to be re-programmed to give at least some sub-totals to work from.

I took all the information home, together with some photographs which I wanted included in the report. The old reports were so boring, with reams of figures, a few black and white hand-drawn bar charts and graphs and little else. I then set to work.

I used Impression II to set up the report document, loading the ascii text into Edit first, to strip out unwanted PC characters. Nothing too fancy, I thought, remember what the books say about using too many fonts.

I decided to use Homerton for headings and sub-headings and Trinity for the body text. Even the plain text looked better than the standard courier font usually associated with typewriters.

Next the graphs and charts. Pipedream 4 came to the rescue here. A friend of mine had it installed on his machine and he allowed me to use it. The figures were typed into the spreadsheet and I produced superb 3D bar charts in glowing colours. I saved these to disk in Draw format and took them back to Impression at home to include in the report.

Finally, I used my Vision Digitiser to capture the photographs, again in colour, and placed them in the desired frames. A front cover was designed, complete with a new logo and produced in Draw, a contents page was developed using Impression's style menu, and the whole thing was printed on the Swift.

Needless to say, my boss was absolutely stunned with the result. How did I do it? How long did it take? I had made the first chink in the IBM armour.

Blinkered by desire

Unfortunately, things were still not smooth sailing. I managed to obtain for the section an A5000 complete with Impression II, Eureka, which had just been released and was recommended by our Acorn dealer, an A5 scanner – Computer Concepts Scanlight 256 – and an HP Deskjet 500C colour printer.

I say obtain rather than purchase because our IT section controls the purse strings and would not allow us to buy the desired kit. Instead, I went out

begging and got the whole thing through sponsorship.

Normally such kindness would involve an acknowledgement at this point, but it would be embarrassing for the organisation involved in the sponsorship deal if I did.

Also, I do not wish my employers to be identified, because the organisation as a whole does an excellent job, it's just the blinkered IT section who cause me problems.

The staff who produce the statistics reports quickly learned how to use their new computer – well they would, wouldn't they – it's an Acorn. Within a short space of time they were producing superb documents, full 30/40 page reports, short information leaflets, pamphlets. You name it they were doing it.

But their fame spread like wild fire – good news generally does. "Can you make us a letterhead?", "Could you just do us a poster?", "How about a favour?", "We're putting on a show, could you make the programme?".

Believe me, the response to our new piece of kit was overwhelming. Staff in an adjoining section, who used IBMs with a user-programmable database, came in. "Why can't we have some of those?" The output was superior, the ease of use was patently obvious. "Sorry, but it's not IBM" was the IT section's reply.

The point of no return

Due to the demarcation line, I had to be available as trouble-shooter and support agency for the A5000. Needless to say, once the staff became familiar with the equipment and software the calls on my time have been few and far between, which is more than can be said for our less fortunate colleagues on the PCs.

The IT section are constantly being called out because O/S 2 has crashed, thrown a wobbler or some such thing. It seems that the stock response to desktop problems with O/S2 is to re-format the hard disk and re-install the software, a process taking about four hours. Mind you, any comparison with O/S2 desktop and Acorn's is purely speculative.

Up to now the A5000 has never caused any such problems.

I doubt we shall ever require their assistance for breakdowns, but Desktop Projects in Stockport, the suppliers of our kit, have been absolutely fantastic with regard to advice and technical help and no query is ever too much trouble.

The work rate and request for quality-printed documents became so great that I had to go to my boss to plead for another computer. He was already convinced of the worth of the Acorn and authorised, contrary to policy, the purchase of a further A5000, a Canon BJ600 printer, Impression II, Fireworkz and Sleuth.

This came out of the department's budget as the IT branch still would not bend. In fact they are now screaming things like *not compatible, not a business machine* and other typical stock PC user phrases. They will not, however, come and see for themselves just what this *incompatible* machine will do.

The future?

The next project was to network the two machines to improve productivity. Acorn Access has been installed and is working flawlessly.

As well as printing our own documents on the inkjets, we now save files to disk in PostScript format and send the disks to the firm's own publishing section.

The quality of the finished documents is such that other sections in the organisation are asking, "When can we have an Acorn computer." The answer they are getting at present is "You can't – it's not compatible."

What a shame that such blinkered views are held by people who should be providing equipment to suit particular needs. AmiPro is the best they can give us for desktop publishing work. The unconverted think it's good – until they see Impression.

Still I shall continue to preach. I keep planting the seeds and who knows? Perhaps Risc PC will be seen as a face-saving compromise, at least it's got the right letters in the name...

University challenge

Jim Gilligan reports on what Acorn machines are up to in Bristol

IF YOU were asked to select micros for one of the largest universities in England, how would you choose? Compatibility with industry standards? Cost? Flexibility? Range of software?

At the University of the West of England in Bristol, that's the problem faced when buying equipment for teaching labs. With over 16,000 students and almost 3,000 micros, it is a question of getting the most effective mix of machines, rather than buying the flavour of the month from industry favourites.

Of course, each faculty has its own special requirements – the Business School want machines capable of running business software like WordPerfect and Lotus 1-2-3, while the Engineering department has packages to meet its specific CAD/CAM requirements.

The range of uses of such a large university means that no single configuration will meet the demands of every department, far less every individual user.

In my own department of Computer Studies, courses in systems analysis, real-time systems and computing go hand-in-hand with a wide range of specialist projects, including AI research, transputers, collaboration with the high energy particle accelerator project at CERN in Geneva, and work on flight simulation software with British Aerospace.

The result of all this activity is that while commercial organisations will compromise on their micros in order to reduce cost, at UWE we simply can't afford to limit our choice of machine.

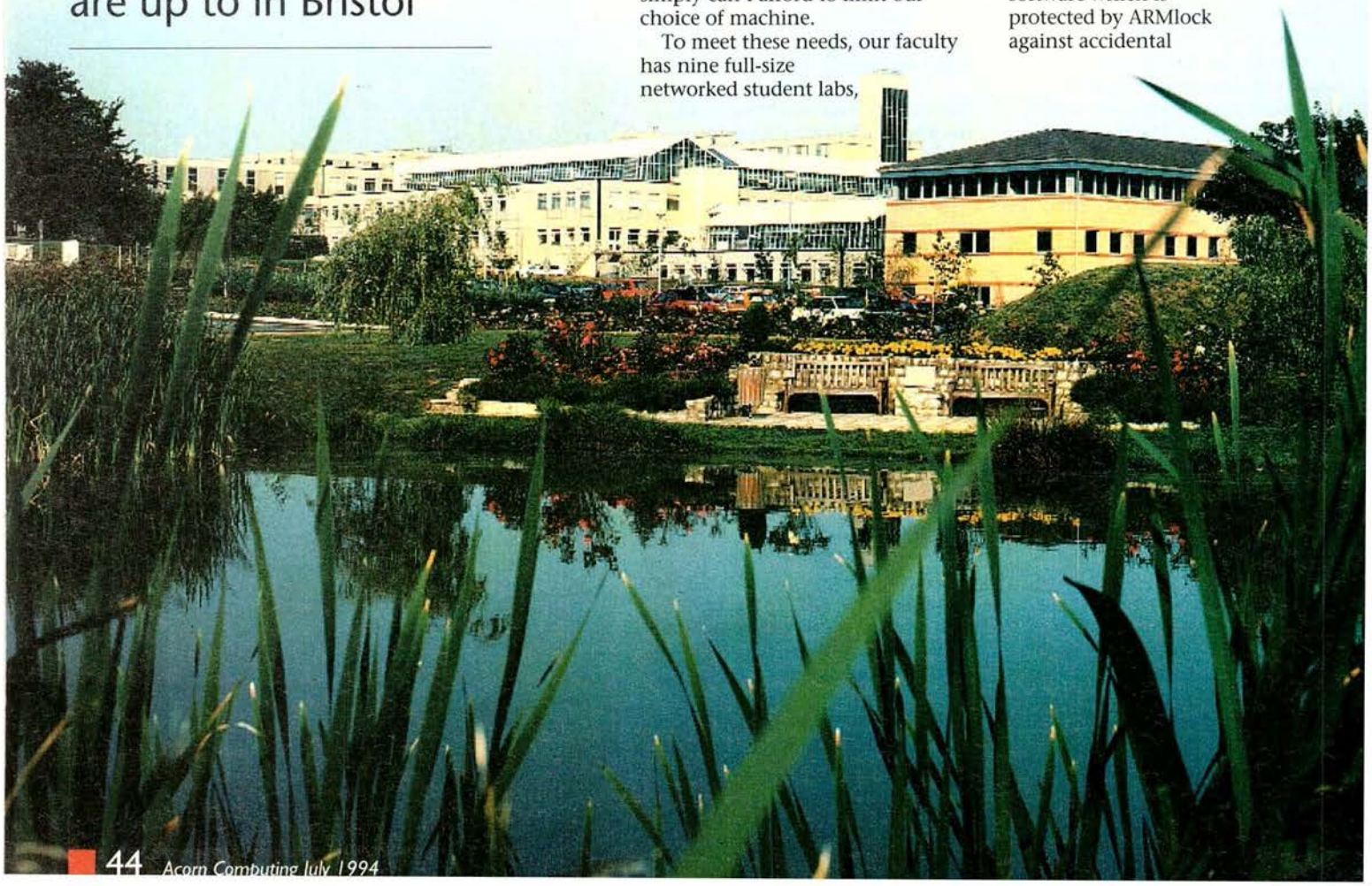
To meet these needs, our faculty has nine full-size networked student labs, each kitted out to meet particular requirements. There are Sun workstations, PC labs, VAX terminal rooms, and so on. But one room is special, attracting students from courses all over the university – and that is the HCI lab.

Here students can study that (still!) mysterious place where human meets machine, whether it be through a keyboard, mouse, WIMP or command line – the Human Computer Interface – and come to understand the different forms of dialogue which are possible – the Human Computer Interaction. And in the HCI lab at UWE you will find eight A5000s, networked, and ready to go.

Nuts and bolts...

Each A5000 in the HCI lab carries 4Mb of ram and a standard IDE hard disk. In the nearby Staff Research and Postgraduate lab however, a central R260 running RISC iX is networked through NFSFiler, acting as both a public file server for RISC OS, and as a Unix development platform.

A benefit of this is that the on-board IDE disks can be used for core software which is protected by ARMlock against accidental



● *Who said student projects don't make money?*

(or deliberate) reconfiguration by users.

Student data may be temporarily stored on the server allocation of the R260, or on a logical server assigned to the student or student project. As a last resort, of course, there's always the floppy disk.

Hardcopy output also benefits from the network. The lab-based HP 500C DeskJet is a popular choice and much used. However, students these days have become used to laser quality, and some lecturers seem to expect no less when it comes to handing in assignments. As a result, the A5000s are linked to a central PostScript printer to allow high-quality fast output.

The CD-Rom drive in the lab is now an almost indispensable piece of kit and is particularly useful for DTP and graphic art, as is the Epson GT8000 scanner.

...and softer bits

There is a set of core software available to A5000 users which includes Impression as a standard word processor, Squirrel for database, the PC emulator, and Genesis for multimedia. On top of these and the standard software provided with the machines, there are packages used for particular teaching needs.

On the Pinboard there is SBProlog and on the icon bar is a VT220 Terminal Emulation program, used for emulating multiple Unix sessions – an important aspect of most UWE micros is connectivity and the ability to emulate other devices.

By supporting an open systems approach, we can make the best use of the considerable range of resources at our disposal.

Probably one of the best things about Acorn-based software, however, is that wide, sometimes sophisticated but definitely endless, stream of PD and shareware that finds itself – somehow – on the network, before being archived into (near) oblivion.

The problem, of course, is wondering what you've missed, and no-one has yet set up an internal bulletin board to let users know what's around. Maybe next year?

Why study HCI?

The importance of HCI studies at UWE is confirmed by the fact that of the three internal *schools* within Computer Studies, one is specifically the School of HCI. The reason is clear.

For decades now, computers have been difficult. So-called ordinary people shied away from them, worried that a single keystroke by the uninitiated digit would result in local, if not global, disaster.

Grown men and women tapping nervously on keys, fingers metaphorically crossed in case the dreaded, but meaningless, error message would appear on the screen.

Ten years ago, micros saw an end to much of that paranoia in a fairly robust way. Users – no, people – discovered in their own time and their own way, that while their Commodore Pet appeared to shoot 40,000 volts through a floppy disk left in the drive when they switched off, micros were no more mysterious or unreliable than the office photocopier.

The trick was gaining confidence in what you had to handle. Now that users have had a decade or more of battling with the likes of MS-DOS, and far from being frightened, they just don't find hostile software funny anymore.

Year after year I see a new cohort of students arrive, many from schools where they have been exposed to both Acorn and MS-DOS, and each year they are less tolerant of bad design than the year before.

With more demanding users, and more demanding students about to become professional advisors and developers, the bad old days of user hostile software has to end.

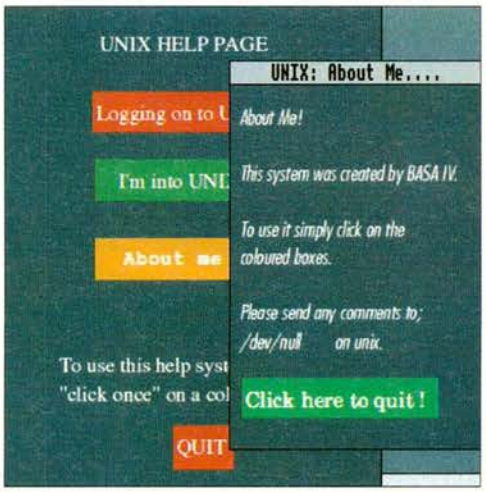
The arrival of RISC OS, the Apple Mac, and even Windows, has shown the importance of understanding how humans work with hardware and software, and what they need in order to work well.

To analyse the interaction between humans and computers, and so define the requirements for a successful interface, students need to work with a range of products.

In more general courses, students will have experience of Intel/Dos machines, and will have come to terms with the peculiarities and complexities of MS-DOS and Windows.

In addition to this, many will have used Apple Macs, and will have some familiarity with a WIMP environment that doesn't seem ➤

● *HCI means accessibility to Email...*



● *...and Unix*

openly hostile to all but the most enthusiastic user.

Why Acorn?

The HCI lab itself is a fairly recent addition to our facilities, and owes much to the enthusiasm and dedication of Frank Maddix, a senior lecturer in HCI.

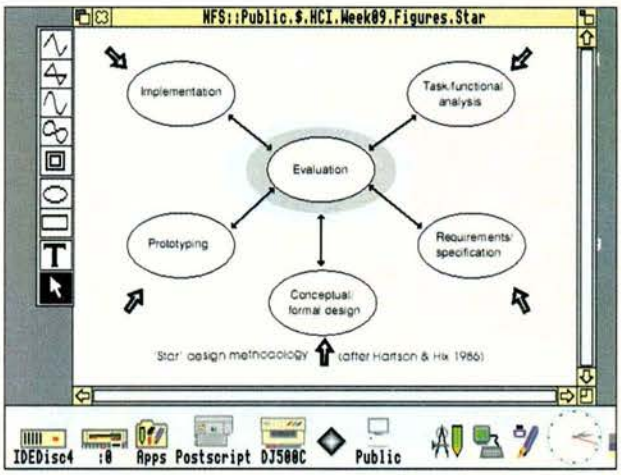
He has no doubt why Acorn machines should have been chosen for the HCI lab: "If we look at personal productivity, as so many organisations are, the HCI aspects become very significant indeed. RISC OS lifts productivity to new levels and that is something we cannot afford to ignore.

"These machines are so effective, for such a wide range of HCI interests, from DTP onwards. RISC OS is wonderfully intuitive and packages such as Genesis provide an ideal introduction to the study of prototyping, the visual interface, and from there to multimedia.

With X-Windows and MS-DOS emulators, you also have a system capable of showing alternative interface solutions to compare and contrast with RISC OS."

The bottom line is that there is a massive amount of software covering all aspects of computing and HCI in particular which is just not readily available on other platforms.

The range of student projects is, of course, another measure of the HCI lab success. From simple Genesis *front-ends* to full-blown multimedia packages, both undergraduates and postgraduates find the A5000s more productive than other platforms.



● *Analysis has nothing to do with accepted views of industry standards*

Tony, a final year Systems Analysis student allowed himself half an hour to try out the A5000s – *just to see what they're like*. After that brief time he was a convert to RISC OS, and curses the fact that he still needs to struggle with Windows in order to use the business software which is available on that platform.

A familiar enough story but painful nonetheless. The good news is that when he completes his degree, there will be one more analyst in the business world who will not be content to accept products simply because they are regarded as some kind of industry standard.

There may well be criteria other than HCI to consider, but at least he will be able to make an informed choice.

The future of the HCI lab...

The study of Human Computer Interaction is one of the most important areas of the information industry today. The future of micros will be determined in part by the ease with which people can use them, and that use will be determined by the interface itself.

This would seem self-evident, yet it is surprising to find few significant advances among the major players. At UWE, among the wide range of equipment we have at our disposal, the A5000s and RISC OS provides students with one of the very best examples of an interface that is intuitive, simple, and powerful.

The lab is well established now and very well used. When asked about future developments, Frank is cautiously optimistic: "Acorn are releasing products now that look as if they might take us into a whole new era of HCI – not just a step forward, but a leap into new territory.

"We'll have to wait and see what becomes available in the immediate future, but whatever does happen, the lab will reflect best practise among HCI developments."

RISC OS is sometimes talked down a little in the press these days as being long-in-the-tooth. Well, perhaps it is not so far ahead of the competition as it once was.

However, there are still a lot of people out there struggling through MS-DOS manuals, trying to make sense of their *industry standard* HCI. As Frank says: "99 per cent of people sitting in front of a micro are having a bad time – let's change that."

Acorn may have a host of wonders in store for us, but to many professionals who have not been blinded by the commercial success of other platforms, they have already shown themselves to be ahead of the competition in HCI.

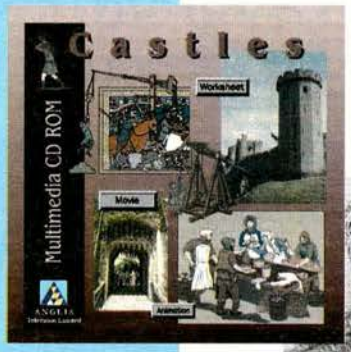
And HCI, in many ways, is the future.

● *All lined up and ready to go*

Have you seen these CD-ROMs?

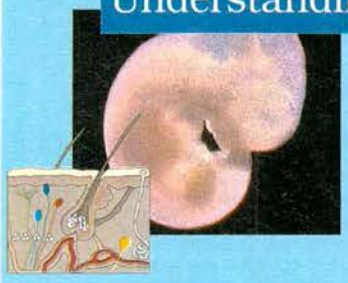
Countries of the World

Garden Wildlife



Castles of the British Isles

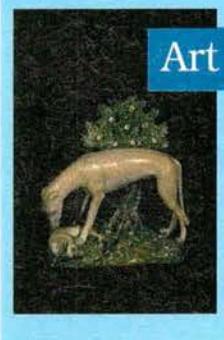
Understanding the Body



19th Century Biographies

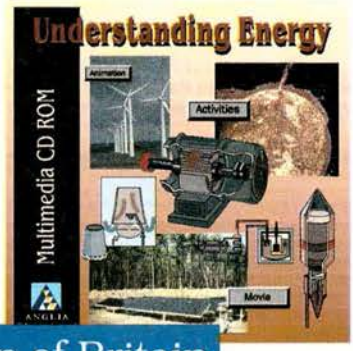
Counties of the British Isles

World War II - On the Home Front

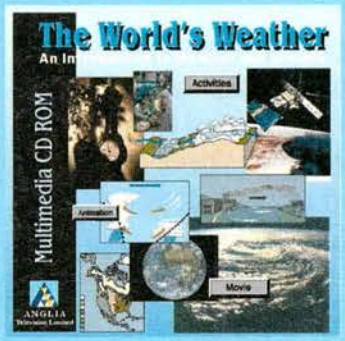


Art Store - Looking at Animals

Understanding Energy



The World's Weather



The Industrialisation of Britain

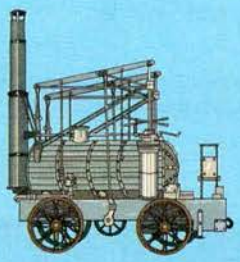
... and there's more to come

Anglia Television Education is well-known for the integrated KEY system which operates across the Acorn and IBM and compatible (Windows™ 3.1) platforms. It also now offers a wide and growing range of CD-ROM discs, created initially for the Acorn range of computers, and making full use of RISC OS facilities. Starting at just £25, these discs offer a rich experience for the classroom or home use. Map discs, for use with the KEY range of software, include many GIS (Geographical Information System) facilities.
Stand-alone discs give hundreds of pages of information, covering topics from human biology to castles, weather and climate to art from the principal British galleries. Animations, video sequences, drawings, commentaries and clear text all combine to provide insight for the inquisitive mind. Activity sheets, timelines, databases, a selection of on-screen tools, glossaries, reconstructions and the facility to move materials to your own work area all add to the value of the discs.

For full details, phone, fax or use the coupon to obtain Anglia's catalogue. This will ensure that you receive the current list and regular mailings as the range grows.

The integrated KEY system from Anglia Television Education

ANGLIA
Television Limited



CD-ROM

The 1994 catalogue from Anglia includes details of the range of CD-Roms, starting at £25.00

KEY initiatives across the curriculum

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Not all products are available on both platforms: catalogue supplies detailed information

Prophet

The small business accounts application for the Archimedes.

Now in its 3rd year, Prophet has received critical acclaim from all the Acorn magazines as well as its users too numerous to mention.

If you write your accounts manually or with a spreadsheet you will not only find Prophet instantly familiar BUT ALSO a lot easier.

No tedious end of month routines like most accounts applications, with Prophet you can enter, see and edit all of your entries for any period whenever you like.

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Personal Accounts V3

Version 3 of Personal Accounts is now available

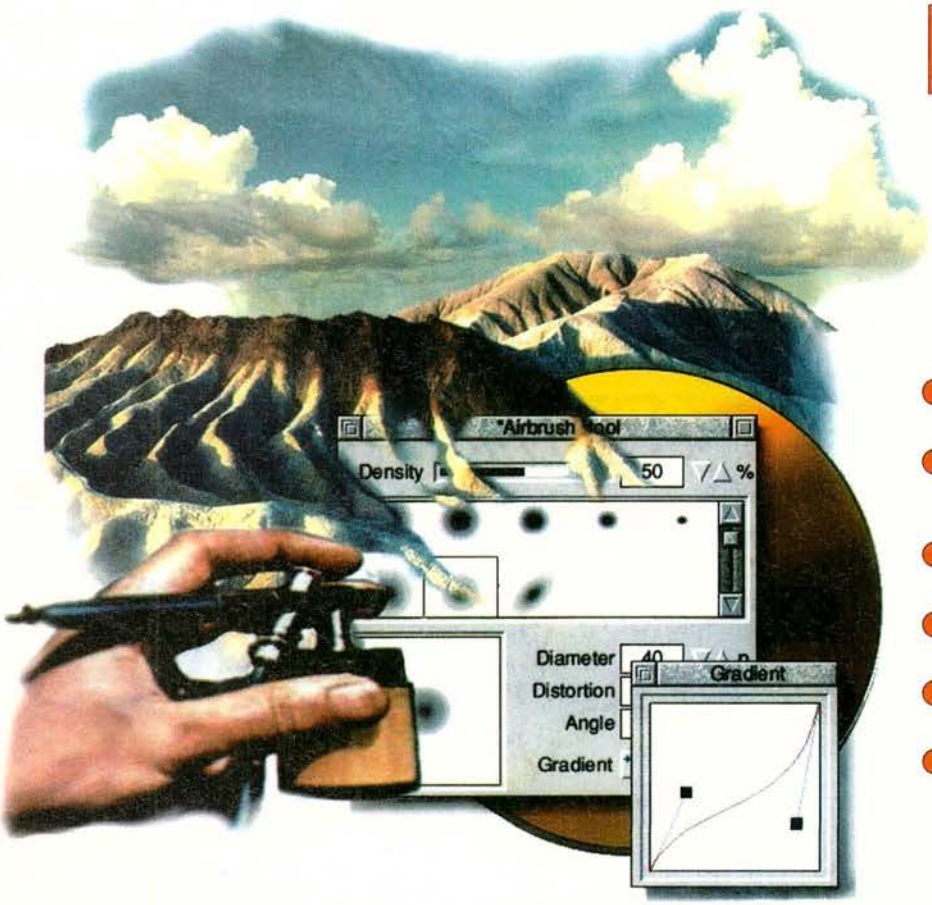
This new entirely re-written version has features not previously seen on any other personal accounts application **on any platform** including the Archimedes. **Drag and Drop** anything within Personal Accounts anywhere else. **Windows** - all window positions including their scroll bars are remembered and you also have control over which windows will be automatically opened on loading a file. The result is a completely definable desktop environment. **Relational** - the second you enter or **edit** anything in Personal Accounts all associated windows are immediately updated - imagine entering a payment from your bank account to a credit card account and seeing **both** account totals change as you type, or entering a cash payment for petrol and seeing your cash balance being debited as your petrol account goes up - this is so intuitive you will find it hard to make mistakes, but if you do, correcting the error is as simple as placing the cursor in the entry and editing it. **Memory** - even a file with thousands of entries will run on a standard 1mb machine. Personal Accounts V3 also has **full Undo and Redo** facilities. You can undo everything right back to day one and then redo it right back to your last key press. With **automatic standing orders** and an **automatic forecast** feature, **Personal Accounts is a must!**

Personal Accounts V3 costs just £49.95 inclusive of postage and VAT. **Owners of Version 2 can upgrade to the full package for only £29.95 inclusive of postage and VAT.**

The current version of Prophet (V1.38) has a myriad of extra features based on user feedback and this combined with our policy of **free upgrades** ensure that Prophet will always remain the number one choice for small business accounts software on the Archimedes.There are over 600 Prophet users which include Acorn dealers such as: 4Mation, EFF, Stallion, Spacetech, Davyn, Arm-Tech, Topologika.....

Apricote Studios, 2 Purls Bridge Farm, Manea, Cambs, PE15 0ND. Tel: 0354 680432

VISA Access



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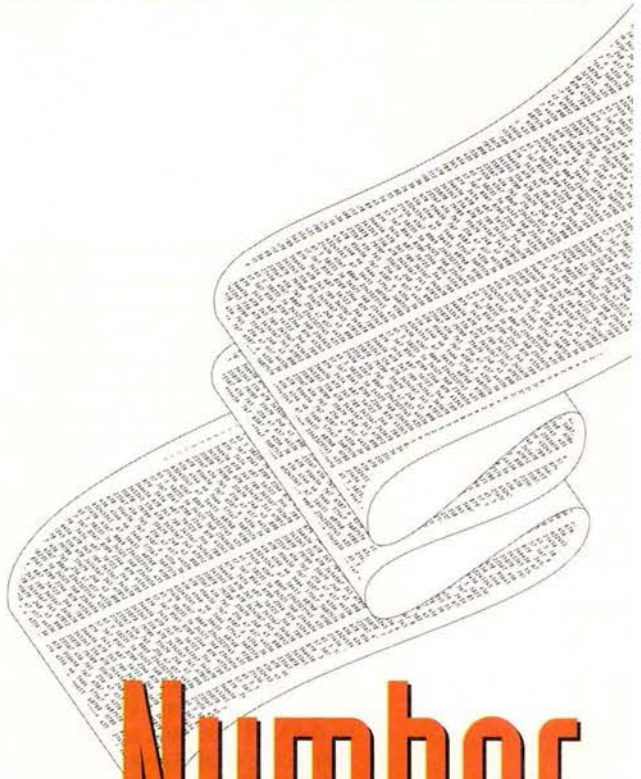

Number crunching

At worst terrifying, at best frustrating. Clem Vogler demystifies computer accounting

WE ALL use word processing or DTP software because we all write to people – and as computer users, we know, and even persuade others, of the benefits of using software tools for this task. We also spend and, hopefully earn, money yet only a few of us use accounting software. Why?

People shy away from accounting software for several reasons:

- It's confusing. Accounts software is usually procedural – leading you through a sequence of steps. If you want to take a different route it makes you start again, or worse, won't let you go back.
- It doesn't meet your needs. If you are a service provider, supplying computer programming or renting bed-sits, you probably don't have suppliers from whom you regularly make purchases on account and won't want software which maintains a purchase ledger.
- It's difficult to set up. When we're born, our minds are on other things than book keeping. By the time we get around to remedying this carelessness it's too late.

Instead of a clean sheet we have a variety of liabilities and assets ranging from the mortgage to a 2p piece blocking the filter in the washing machine. We have a collection of bank, building society and credit card accounts and a clutch of unpaid bills.

We have a three-year old child who ate the last bank statement or a spouse who treats cheques received like fine wines – laying them down to mature for a few years instead of presenting them for payment.

In defiance of the Second Law of Thermodynamics, all this chaos has to be reduced to order and entered as opening balances. Accounts software instruction manuals sometimes concede that this is the most difficult part and advise the help of an accountant.

Legions of ledgers

When imitating the different ledgers used in manual book keeping, a modular approach is taken for computerised systems. The modules may function as a sales ledger, a purchase ledger, a nominal ledger, a stock control system, a mailer database and a payroll manager.

All users need the nominal ledger, which records transactions by cost code – such as rent, repairs, bank account, VAT, wages, stock purchases and sale of assets.

If you want to invoice customers you will need a sales ledger and to maintain supplier accounts you need a purchase ledger. The stock control module keeps track of stock – it shows you how many items you have, what they cost, what quantity discounts apply and what your minimum levels and re-order quantities are.

It may also print a price list, envelopes with mailers' addresses on, do mail merges and have a variety of database management facilities.

Payroll looks after wages. Data entered in one module needs to be updated to related modules as appropriate, so avoiding repetitive data entry and, more importantly, entry of inconsistent data.

Accountancy or book keeping?

Most so-called accountancy software does book keeping, maintaining records of the year's financial transactions. Additionally, the software may claim to undertake accountancy functions, producing a profit and loss account of income and outgoings and a balance sheet of assets and liabilities at the year end.

Many people find it too troublesome to maintain the detailed information needed to produce a balance sheet, and even a simple balance sheet may be beyond the capabilities of the software as it may require informed decisions by an accountant as to how data is best presented.

This does not denigrate computerised book keeping – well kept books aid cost control and financial planning. They are a pre-requisite for filling in your tax returns and relieve your accountant of a lot of tedious and expensive work.

Double-entry book keeping

No expression induces more terror than *double-entry book keeping*. It conjures up images of Victorian clerks perched on high stools inscribing columns of red and black copperplate figures in dusty ledgers. You can have double-entry book keeping on a computer and it's less laborious.

Double-entry book keeping reflects the fact that there are two sides to ➤

NOMINAL LEDGER - AUDIT TRAIL

C & J Vogler — Date 20.04.94

Account	Date	Reference	Amount	Bal. A/c	Batch
305	06.04.94	Open-Bal	-237.40	447	8
447	06.04.94	Open-Bal	237.40	305	8
149	07.04.94	1	-30.00	S1003	11
349	07.04.94	1	30.00	149	11
349	07.04.94	C	-30.00	300	11
300	07.04.94	C	30.00	S1003	11
181	07.04.94	2	-137.50	S1004	11
349	07.04.94	2	137.50	181	11
349	07.04.94		-137.50	300	11
300	07.04.94		137.50	S1004	11

● *Following the Audit Trail*

every transaction – the giving and the receiving. In buying a spade for £10 we give cash and receive a spade.

In book keeping, receiving is a debit and giving is a credit. In our books we would record a debit of £10 to the Gardening Account and a credit of £10 to the Cash Account.

Many people find this runs counter to intuition. If so, think of the transaction as doing your Cash Account credit – because it paid for the spade – while your Gardening Account is indebted – because it was given the spade.

If VAT is involved we record three entries. A debit of £8.51 to the Gardening Account, a debit of £1.49 to the VAT Account and a credit of £10 to the Cash Account. The total debits still come to £10 and the books balance.

The essence of double-entry book keeping is that the books must always balance and you run the trial balance to show this. If they do not you have an error.

This was the original reason for introducing the double entry system – to trap adding-up errors. With computerised book keeping, errors in arithmetic are (almost) impossible though not data entry errors, which are not trapped.

However, it is still worth persisting with double-entry book keeping, firstly because it reflects commercial reality and secondly because, using a computer, you in fact only have to make a single entry, with the system responding with the balancing entries.

If you want to know whether accounts software is double entry, check whether it can produce a trial balance. If it can't, it isn't.

Account	Date	Reference	Amount	Bal. A/c
300	16.04.94	spade	-10.00	212
212	16.04.94	spade	10.00	300
		Total credits	-10.00	
		Total debits	10.00	
			0.00	

● *Following £10 in double entry book keeping...*

Account	Date	Reference	Amount	Bal. A/c
300	16.04.94	spade	-10.00	212
411	16.04.94	spade	1.49	300
212	16.04.94	spade	8.51	300
		Total credits	-10.00	
		Total debits	10.00	

● *...and through all the stages*

● *Some examples of nominal accounts*

203	cleaner	A/c type E2 Dept. 1
204	contractors	A/c type E1 Dept. 0
205	adverts	A/c type E1 Dept. 0
206	management	A/c type E1 Dept. 0
207	repay tenants	A/c type E2 Dept. 1
208	repay agency tenants	A/c type E2 Dept. 2
209	phone	A/c type E1 Dept. 0
210	postage	A/c type E2 Dept. 0
211	insurance premiums	A/c type E1 Dept. 0

Pros and cons

Assets are the resources that a business owns. They include bank deposits, stock, property, machinery and plant, debts owed to the business and intangibles like good will and planning consents.

Liabilities are the claims of other people on the business. These may include loans made to the business, mortgages and tax due. If you subtract the Liabilities of a business from its Assets you are left with its Capital. Capital is the claim of the owners upon the business and represents their investment in it.

```
Capital = Assets - Liabilities
```

Of course, the values of Assets and Liabilities are constantly changing. To see what Capital a business has you must choose an instant in time and take a snap shot of its Assets and Liabilities on that day.

The list of Capital and Liabilities in one column set against Assets in another column forms what is called the balance sheet. Naturally, the totals of each column must be the same.

The other crucial financial document is the profit and loss account. Unlike the balance sheet this sets income (revenue) against expenses. It deals with a fixed period, usually a year, rather than an instant in time.

A column of annual expenses such as wages, insurance, advertising and rent is set against a column of income such as sales, commission and interest. If we

```
                    ********************************
                    *PURCHASE LEDGER - AUDIT TRAIL*
                    ********************************
  C & J Vogler                                          Date 20.04.94
==================================================================================
 Account  Date    Reference T/x  Goods value   VAT value    Total    Batch
----------------------------------------------------------------------------------
 P5005  07.04.94            Inv      233.75        0.00      233.75    16
 P5005  07.04.94  000128    Chq     -233.75        0.00     -233.75    16
 P5003  15.04.94            Inv      344.94        0.00      344.94    16
 P5003  15.04.94  000131    Chq     -344.94        0.00     -344.94    16
    Report complete.
```

● *Purchase Ledger Audit Trail follows two purchases*

Glossary

Posting – The act of entering a transaction in a ledger. Unlike word processors and spreadsheets, accounts software does not allow you to erase entries since the transactions they represent are irrevocable. You can make adjustments while you are preparing the entry, but the final act is to post it, making it irrecoverable, like a posted letter.

Journal Entries – These are adjustments made to correct errors. If you post a transaction to the wrong account you can correct it by posting a compensating transaction from the wrong account to the right one. This is the easiest place to cook the books and the first place the auditors look.

Audit Trail – A summary of every ledger entry, showing the amount and which accounts were involved. You can use the Audit Trail to trace the history of a transaction. Audit trails become very lengthy, so there are usually facilities for breaking them down by batch or by account.

Bank Reconciliation – The process of comparing your bank statement with a summary of the entries under the bank accounts nominal code. This enables you to check that the bank's and your accounts agree. Since they will probably be in quite different entry orders, it is useful to have a tick off/on facility which produces a running total of entries ticked.

Trial Balance – A listing, in two columns, of the credit and debit totals for each nominal account. At all times the totals of the two columns should balance, indicating that there are no arithmetical errors present.

Cost Code, Nominal Code – Alternative names for the usually numerical codes standing for various nominal accounts. A common convention is that the first digit specifies whether the account is income, expenses, assets or liabilities.

```
                    ****************************
                    *STOCK CONTROL - STOCK LIST*
                    ****************************

  C & J Vogler                                          Date 20.04.94

        Selection: All items

 Reference     Details                        Quantity      Cost        Sell
 ---------------------------------------------------------------------------
 0             widget                              400      0.33        0.58
 1             sprocket                              3     38.67       47.99
 2             Woodruff Key                          4      0.10        0.20
 3             bolt metric 40x8mm galv            1800      0.09        0.16
                                                 =======   =======     =======
                                        Totals     2207    410.41      632.77
```

● *Keeping track of your trade with a Stock List...*

● *...which you can then analyse...*

subtract Expenses from Income we get Profit.

```
Profit = Income - Expenses
```

So Profit is the item we must add to the Expenses column to make the sheet balance. If a negative profit has to be added because expenses exceed income then we have made a Loss. The annual Profit becomes part of the Capital and is transferred to the balance sheet as an augmentation of Capital.

```
                    ******************************
                    *STOCK CONTROL - STATUS REPORT*
                    ******************************

  C & J Vogler                                          Date 20.04.94
                                          This month      Year to date
                                          ==========      ============

  Total Purchases          £                170.01            170.01
  Total Sales              £                 48.39             48.39
  Markups                  £                  0.00              0.00
  Markdowns                £                  0.00              0.00

  Stock held at cost price    £                485.39
                 at selling price £                724.51

  Gross margin             %                751.74            751.74
                           £                363.77            363.77

   Report Complete.
```

● *...and predict turnover*

```
                    ****************************
                    *STOCK CONTROL - TURNOVER LIST*
                    ****************************

  C & J Vogler                                          Date 20.04.94

        Selection: All items

 Reference     Details                        Turnover      Sell        Value
 ---------------------------------------------------------------------------
 0             widget                                0      0.58        0.00
 1             sprocket                              1     47.99       47.99
 2             Woodruff Key                          3      0.20        0.60
 3             bolt metric 40x8mm galv               8      0.16        0.00
                                        Totals:   Units    Rt Cost     Rt Sell
                                                 =======   =======     =======
                                                       3     38.07       48.39
                                                 =======   =======     =======

   Report complete.
```

Setting up the ledgers

The *nominal* ledger is the core of your book keeping system. *Nominal* means *by name* (it doesn't mean *pretended* or *theoretical*) and all your transactions are recorded in the nominal ledger under named accounts, sometimes called cost codes. These nominal accounts will belong to one of four types: Income, expenditure, assets or liabilities.

Exactly what nominal accounts you set up is up to you and will depend on the nature of your business. If you are a landlord you will want to include rent as an income code and water rates, repairs, cleaning and council tax as some of your expenses codes.

A manufacturer will have sales as an income code, and wages, heating, lighting and business rates among his expenses. His assets will include opening stock and stock purchases.

Some cost codes which are common to all businesses will be set up already by the software provider. You then have to decide on a date for the start of your accounting year.

Many people choose the 6th April as this coincides with the financial year, though there may be tax advantages in choosing a different date. Whichever date you choose, you need to prime your nominal accounts with the correct opening balances for this date.

The income and expenses accounts will have zero opening balances, but the asset and liability accounts will generally not. You need to make a list of these opening balances for inclusion at the outset.

The Assets Accounts list should record the balance on your start date of such things as your bank account, credit card account, cash in hand and opening stock. It will also include the sales ledger balance, which is the balance of any sales invoiced, but not paid on the start date.

Similarly, the list of Liabilities Accounts will record opening balances for loans and taxes due. It will include the purchase ledger balance, which is the balance of any purchases invoiced, but unpaid.

It will also include the net profit carried down from the previous year's profit and loss account, since, as we have seen, this contributes to Capital, which is included with Liabilities in the balance sheet.

If all this seems a bit daunting, you can simplify things by only setting up the income and expenses accounts. These all have zero opening balances if you are starting from the beginning of your financial year, together with the balances in your cash and current bank accounts and the sales and purchase ledger balances.

You will also need to enter opening balances in your VAT accounts as the VAT quarter rarely coincides with the financial year. This will enable you to keep your books and produce a trial balance, but you will not be able to produce a valid balance sheet unless all accounts are set with their correct opening balances.

The purchase and sales ledger accounts are much easier. Just set up the names and addresses of your commonest clients and add others as the need arises. You can decide about refinements like credit periods and credit limit checks when the system is running smoothly.

Stock control is also easy. Start with your commonest items and add others gradually. You need to do an inventory of existing stock and decide on minimum stock levels, re-order quantities and sale price or mark up for each item.

You will also need to have opened two asset accounts in the nominal ledger – one for opening stock and one for stock purchases, together with a stock write-offs account as a nominal expenses account.

```
146   Sales of assets                    0.00      -254.60
147   Discounts received                 0.00         0.00
148   Account interest                   0.00         0.00
149   rent                               0.00    -2,929.09
201   repairs & renewals                 0.00         0.00
202   utilities                          0.00         0.00
203   cleaner                            0.00         0.00
204   contractors                        0.00         0.00
205   adverts                            0.00         0.00
206   management                         0.00         0.00
207   repay tenants                      0.00         0.00
208   repay agency tenants               0.00         0.00
209   phone                              0.00         0.00
210   postage                            0.00         0.00
211   insurance premiums                 0.00         0.00
212   gardens maintenance                0.00         0.00
213   computing expenses                 0.00         0.00
214   client remitances                578.69         0.00
215   consultancy expenses               0.00         0.00
```

● *Use the trial balance to assess the situation and trap errors*

```
Acc S1001                    Insufficient stock of                  Find
Name Acorn Computing,        'Woodruff Key', 2 items left
     Europa House
     Adlington Park
     Macclesfield                    OK
     SK10 4NP
Invoice No 31     Order no          Job No            Date 20.04.94
It Code   Description of Goods   Qty  Value      Dis Net Amount  V
 1 3      bolt metric 40x8mm galv 11   0.16       0        1.76 1
 2 0      widget                   5   0.58       0        2.58 1
 3 1      sprocket                 1  47.99       0       47.99 1
 4 2      Woodruff Key             4   0.20       0        0.20 1
```

● *Whoops!*

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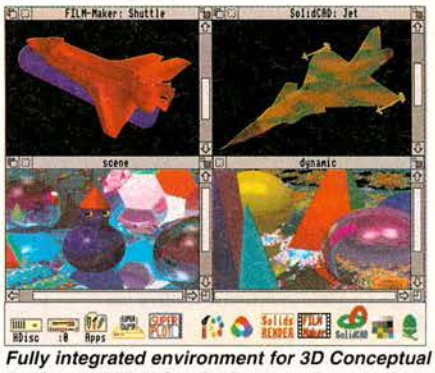

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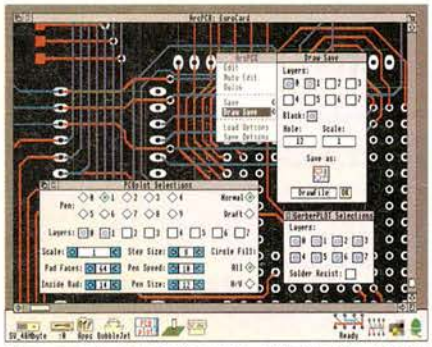

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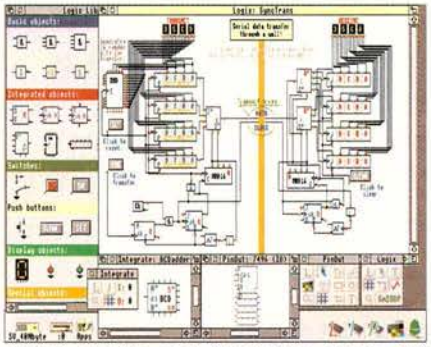

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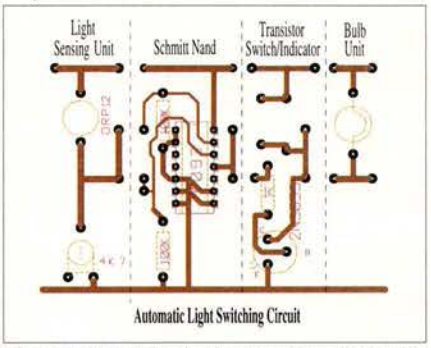

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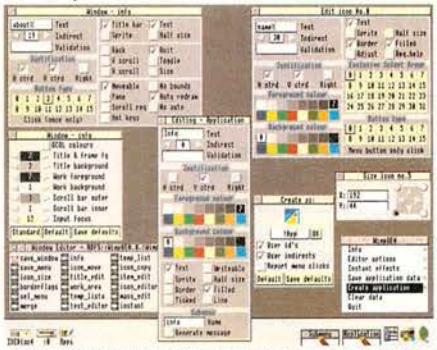

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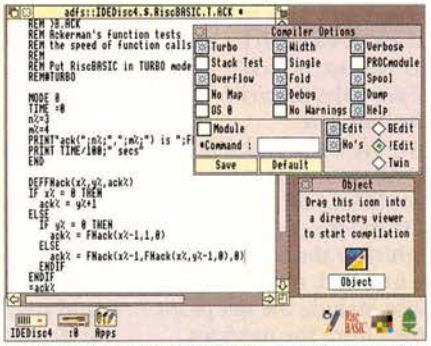

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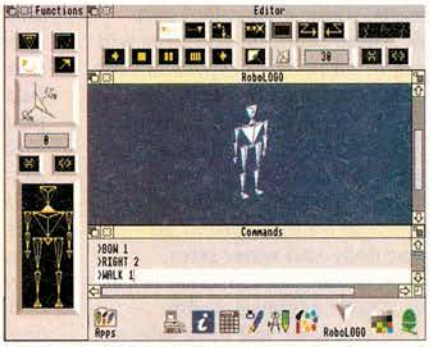

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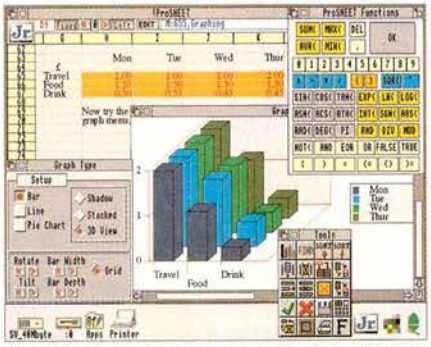

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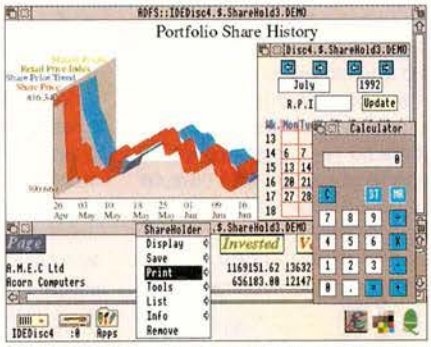

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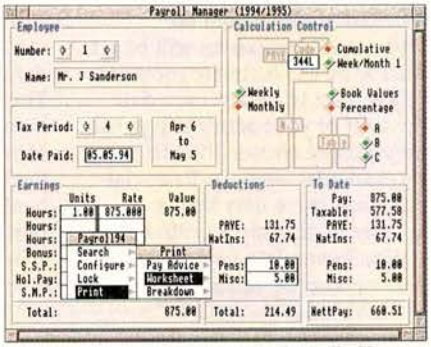

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The short list

Pam Turnbull and Jo Giles look at a series of products which aim to make life that little bit easier

Equate: Mathematical bias

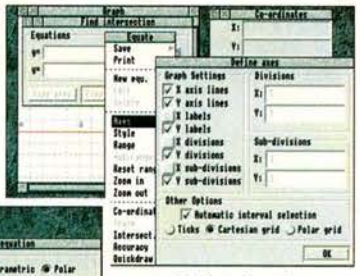
EQUATE is aimed primarily at GCSE and A-level students. This utility will find a home with anyone who needs occasional mathematical graphing functions such as multiple plotting of normal, parametric and polar graphs. In addition, I should image that teachers will find it ideal for displaying examples of mathematical functions.

As well as giving you full control over grid and axis plotting you can zoom in and out easily. PTW have used a vector graphics method of rendering graphs, which means that you keep a good resolution even at high zoom factors. But first and foremost, Equate calculates and draws graphs quickly.

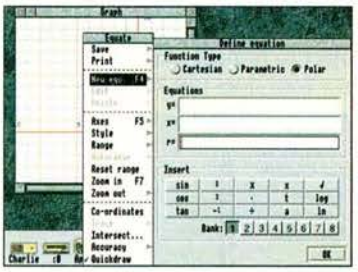
Once data has been entered you can analyse the graphics, find the intersection of two graphs, the gradient or coordinates at a particular point or draw a tangent.

You can have up to 32 graphics on the same axes at once, making it simple for solving simultaneous equations. You can then print, save or export the graph as a draw file or as its own file format – this is text-based so can be easily analysed outside the main program.

Equate is a powerful and complex product which you will either see an instant place for in your library or not. At this price it is a real bargain, doing its job effortlessly and intuitively.



● *Equate gives you the use of complex functions...*



● *...useful for professional users and teaching*

PRODUCT SPOTLIGHT

Price: £15 (inc VAT)
Supplier: PTW Software, 72 Frost Crescent, Fareham, Hampshire PO15 6BG.
Tel: 0329 281930

ARMlock: Lock it or lose it

KEEPING your hard disk from prying eyes is one of the major concerns of network users, especially those with confidential and/or financial documents on their machines.

ARMlock approaches this problem not by requiring you to partition your hard disk into read-only and writable areas, but rather access is controlled by permission of the directories on the disk. This makes it easier to set up, maintain and change.

You do not need to be highly technical to use it either. For those in the know, ARMlock prevents tampering with the computer's cmos ram so that you cannot *Configure* the computer or *unplug* modules without knowing the password.

This makes it highly useful in certain applications – such as education – on standalone, as well as networked machines.

I particularly like the facility for taking backups of part or all of a hard disk to other machines via compression on to a floppy disk. Therefore, access rights to software can be copied to other computers easily and quickly. An extra safety feature is that all ARMlock disks are coded so another copy cannot remove the protection on your machines.

This means you are restricted to 10 machines as each disk has 10 uses, so if you have more machines on site you'll need to remember which disk was installed where. However, I find this an acceptable limitation.

Basically, ARMlock consists of a module which enforces the access restrictions and a manager application controlling settings and taking backups.

This manager software is passworded. The module appears in the root directory whenever the computer is reset and when run the file access and cmos restrictions are put in place. To stop access prior to this being run, the rest of the disk is made invisible until the restrictions are in place.

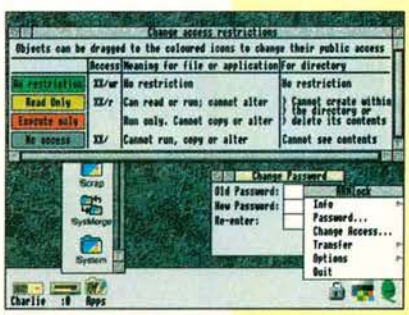
In addition, a map error is created to stop this file being deleted or modified and to prevent anything being written to the disk before the boot file is run. ARMlock also prevents hard disk formatting using HForm or disk sector writes using ADFS_DiscOp.

Setting up is reasonably straightforward and the manual gives good support, including advice on what to do if you delete the directory without deinstalling, so hanging up your entire hard disk.

Most protection can be circumvented by pressing Shift-Break – not so with ArmLock which prevents unauthorised access to any document or application you specify. Very useful and pretty much fool proof.

PRODUCT SPOTLIGHT

Price: £35
Supplier: Digital Services, 9 Wayte Street, Cosham, Portsmouth, Hampshire PO6 3BS.
Tel: 0705 210600
Requirements: RISC OS 3



● *ARMlock lets you specify which files you want to protect and to what extent*

KernPlus: Changing spaces

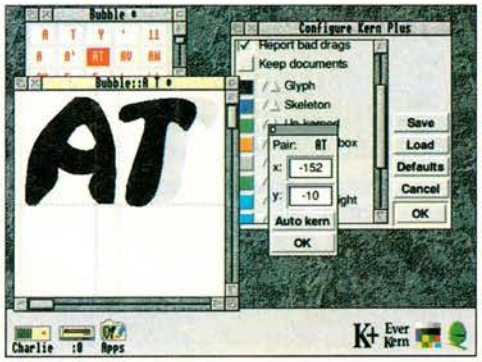
KERNPLUS is an intelligent and intuitive multitasking solution for improving the look of your fonts – should they need it. It does this by placing a list of pairs of letters – kern pairs – in the font definition. This list contains a kerning offset for each pair which tells the font manager how far left or right of normal the second character may be plotted – the *kerning offset*.

PRODUCT SPOTLIGHT

Price: £15 (inc VAT)
Supplier: PTW Software, 72 Frost Crescent, Fareham, Hampshire PO15 6BG.
Tel: 0329 281930
Requirements: RISC OS 3.1

The English alphabet has 676 possible pairs of letters plus punctuation combinations, but very few are actually useful. KernPlus is limited to pairs which look awkward when subject to normal spacing.

If a font does not have any kerning information KernPlus adds it, while letting you edit the ones that do. It has a default list of kern pairs but you can alter these and set the kerning movement manually or automatically.



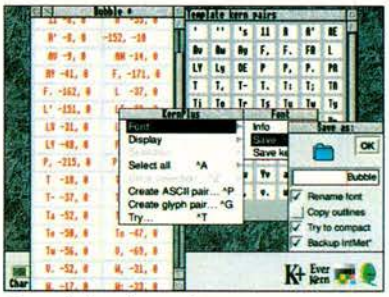
● *KernPlus allows you to alter letter spacing manually...*

KernPlus comes with two applications, KernPlus and EverKern which forces all applications to use kerned fonts where possible. After loading the two programs on to the iconbar you are ready to start altering your fonts.

When a font is loaded it will be *colour-coded*, showing its status:

Black	Kern pair found already defined
Blue	New kern pair created from standard template
Red	Existing kern pair modified manually or automatically

The kern pairs are displayed in the system font but you can see the reaction to the specific font by choosing the *Use font* option. If you are unhappy with the automatic kern, simply double-click on the kern pair and alter it manually by dragging the second letter to the required place, or type the desired offset directly into the icons in the tool bar, choose *update* from the kern window menu and enter the values, or finally, use the cursor keys in combination with Shift and Ctrl.



● *...via kerning pairs from different fonts*

Don't forget to save your adjustments. You can save over the original, but I prefer to save edited fonts separately. If you decide to adjust a font held in rom you cannot of course overwrite it. Now its up to you to try out the new look on your text and, if necessary, make further changes.

The majority of DTP users will find kerning built-into their DTP software, but sometimes you need greater control and this is when a product like KernPlus comes into its own.

It's inexpensive, easy to use – as well as experiment with – and furthermore it comes with a well-written manual and on-line help.

RiscView: Template editing

IF YOU are familiar with S-Base from Longman Logotron, then you'll probably feel instantly at home with RiscView. This is a style-based template editor based on the template editor in S-Base, but now supplied directly from the author as a stand-alone application with its own template file format allocated by Acorn.

RiscView will read and write standard template files in its own file format or with standard template file format if you preferred.

Style-based means that you can set up styles for things like an OK button or writable icon – similar to setting up styles in Impression – so if you change a style all the icons you have already implemented will be altered automatically. My only surprise is that no one thought of it before.

PRODUCT SPOTLIGHT

Price: £9 (Professional £29)
Supplier: Simon Glass, PO Box 834, Landbeach, Cambridge CB4 4DG.

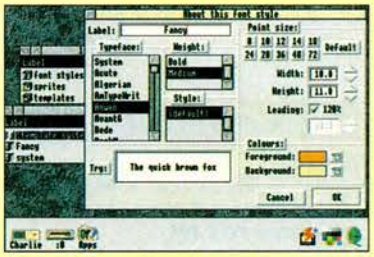
The templates themselves are treated like Draw files where you can copy, move an icon, ignore button types and so on. You can then *Try Out* your template when ready.

RiscView files can be compressed and can also automatically produce a standard template file and low and high resolution sprite files.

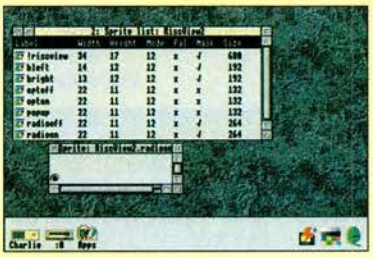
There are two versions of RiscView. The basic edition cannot load and save RiscView files, therefore not giving you access to the *style* side, but Simon is promoting this as a direct alternative to FormEd since it only uses the standard template files.

RiscView is easy to use and I prefer to edit via dialogue boxes rather than menus and multiple icons using a single dialogue. A toolbar gives access to most features and you can fully access different fonts as well as merge template files and drag icons and templates between two loaded files without losing style information.

For my money the professional version is the one to go for, just for the time saved through the style facility. A very nice program altogether and one which allows you to make use of the work done by Simon in the development of S-base and to use it yourself on a variety of programs of your choice.



● *RiscView takes a style-based approach to template editing...*



● *...your sprites are also easily accessible*

Spooler: Releasing control

THE last time I used a print spooler I was very attached to my BBC B but less so to my 9-pin dot matrix. In the era of TurboDrivers, InkJets and Lasers, not counting 32-bit Acorns, can a spooler still find a space?

Spooler is very straightforward to use. You just load it on to the iconbar and it will intercept your printing from desktop applications storing it temporarily on disk. The printing is then done in the background, returning your desktop to you. You can also print extra copies independently of the application.

This works best on a hard disk with the files being saved – by default – to a directory within PrintSpool. However, floppy disk users are catered for, as you can change the directory so that the printouts are stored on a ram disk for speed. You can also set the directory by dragging the target directory to the iconbar icon.

Clicking Select on the iconbar reveals a window showing the status of the documents being spooled/printed. You can move these around, delete them or clear the queue completely.

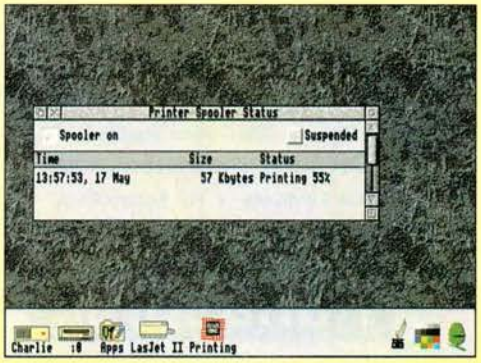
PrintSpool can be toggled on and off, which is useful if you are using applications that don't use RISC OS printer drivers. PrintSpool won't work with LaserDirect-type drivers but will detect these and disable itself while you're using this driver.

The only other limitation I came across was that you can't drag a text file on to the icon – as from Edit. You'll need to disable the spooler and then print in the normal manner.

Clares mention a problem with the way Impression detect the dongle, meaning that you can receive the message *Hardware Key not Found*. I managed to reproduce this using a copy of Impression II but only when the printer was turned off.

Whether you need this application depends greatly on your printer. With a HP DeskJet I could see no noticeable improvement, in fact on some documents it seemed to take longer.

However, when tried with a DataProducts laser printer the results were very impressive. If you have a slow printer then PrintSpool is ideal improving productivity and reducing the input of cups of tea while printing.



● *PrintSpool gives you greater control over printing*

PRODUCT SPOTLIGHT

Price: £15
Supplier: Clares Micro Supplies, 98 Middlewich Road, Northwich, Cheshire CW9 7DA.
Tel: 0606 48511

Repro: Accessing hues

IF YOU are really serious about using a colour printer then you will have experienced the frustrations that come with trying to get exactly what you have created on screen on to paper. One of the major problem areas is that of the palette. Enter Repro – a printer palette editor.

The principle behind this utility is such: The majority of programs use the Printers application and certain printers – including dot matrix and inkjet models – fall into a general purpose dot-matrix category and use the PDumperSupport module. This consults a palette file for the translation of colours on screen to the dot patterns on paper.

Palette files are numbered and can be found inside the Printers, with the number used by a particular printer set by the printer definition file.

This file can be edited by PrintEdit to use a file other than the default. For testing purposes and special effects, an application called PrintPal is supplied which renames Palette files while the printer driver is running.

So all you need to do is load Palette 0, edit it and save with a different name. PrintPal will change the translation from palette 0 to palette 1. Then you just print.

Some trial and error is required to make sure that the output is what you want, but when you're happy you can set up a driver to use your new palette file so you don't have to redo your work.

I haven't room here to go into the intricacies of colour reproduction and in particular the problems with black inks. However, when reproducing colour on screen, it is possible to vary the intensity of a single dot in order to give the levels between 0 and 255.

This is not possible on paper, so a pattern of dots is used called a *screen*. Fine screens arranged on top of each other can produce Moire or interference patterns.

This is avoided by angling screens. It also has another beneficial effect in that it makes the human eye think it is seeing one continuous hue.

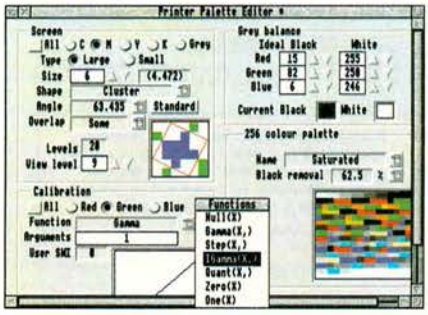
In addition ink tends to spread, so a fine pattern of dots may look no different from completely saturated ink coverage, because the ink will spread and join at the edges of the dots. You can compensate for this by reducing the levels of the colours – this is known as Gamma correction.

This is where Repro comes in, letting you set the screen shape, angle and size as well as gamma correction function and grey balance correction and black removal. A second window shows exactly how each colour will look on paper.

This is not an application for everyone – hence the price – but for anyone who wants to reproduce high-quality artwork it is a very useful addition to your hard disk. The manual is simple and on disk and the program straightforward and quick to access.

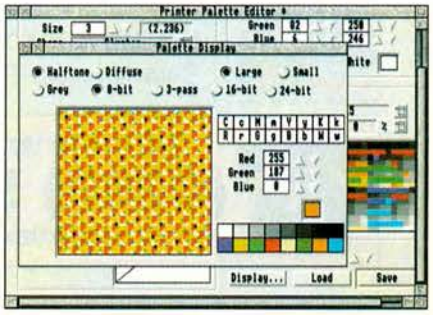
PRODUCT SPOTLIGHT

Price: £50
Supplier: Oak Solutions, Dial House, 12 Chapel Street, Halton, Leeds LS15 7RN.
Tel: 0532 326992
Requirements: RISC OS 3



● *Experiment editing the palette...*

● *...and then view your efforts*



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Expertise at your fingertips?

Michael Rozdoba checks out the latest version of an expert shell system

IN the January 1994 issue I reviewed Observess 1.00, an Expert system shell for the Archimedes. Since then, Observess has undergone several upgrades, now at version 1.13, and warrants another look. You'll find an introduction to expert systems and knowledge bases within the January review. However, for those who missed it, here's a summary of what Observess is all about.

A knowledge base is just a collection of rules which codifies human expertise in some very narrow subject areas, such as diagnosing faults in a motor car. An expert system shell such as Observess is a tool for manipulating knowledge bases of a given format, each describing expertise in one specific area.

With it, they may be created, edited and saved, and most importantly, processed using the smart part of the expert system shell, known as the Inference engine.

The knowledge base has a goal or question associated with it, which in the car diagnosis case could be *What's wrong with my car?* The inference engine will attempt to use the knowledge base to deduce the answer to this question, based on any initial facts or symptoms supplied by the user of the system.

This process, called consultation, will usually involve the user answering some questions concerning symptoms, posed by the inference engine.

Acorn expertise

Observess from Rebecca Shalfield – now known as Cherisha Software – has one major advantage over its Expert system shell competitors in the Acorn market. There aren't any others, as far as I am aware.

So, if you would like to investigate expert systems informally on your Archimedes, Observess is possibly the only choice. If you know of an alternative, let us know.

Observess comes in two flavours – development and run-time. The latter is a cut-down version which lacks the ability to edit knowledge bases, but can interrogate them.

Its status is shareware and it may be distributed to third parties, by any user of the full version, who devises a knowledge base that they want to allow someone else to use.

A knowledge base consists of up to 1000 rules, each of which roughly takes the form:

```
If (<variable1> = <value1>) and
(<variable2> = <value 2>) . . . then
(<result variable> = <result value>)
```

where you can have between one and three variables in the condition and any section may be made negative by preceding it with not.

Variables are textual only. You can have a condition such as Age = 6 years, but the inference engine knows nothing about numerical values – six years is just another discrete textual value that Age may or may not be equal to.

Editing knowledge bases is fairly straightforward. A single menu on the main window, displaying details of the current base, gives access to all editing and control facilities, via a number of transient dialogue boxes attached to the menu.

Once a base has been created, or loaded from file, you can choose to consult it. This again is a simple process. Observess will ask questions like 'Does Age = 6 years?', based on some of its rules, each of which it scans in turn, to which you may respond yes, no, don't know, or with a particular value, if you know it – and it isn't the queried value.

Eventually, if it is able, it will come up with an answer to your question. How well it does this depends on the knowledge base, how flexible its format is, and how powerful the inference engine is.

Observess 1.13

The user interface still has an amateurish feel to it, both in the design and failure to comply with many of the Acorn's style guidelines. However, some of these are acknowledged problems and the manual promises fixes shortly.

Most of the improvements are cosmetic, though this is no bad thing, and RISC OS 3's 3D bordered icons are now used by Observess.

After running the same tests that I applied to 1.00, I am still concerned about the intelligence of the inference engine, though it does claim improvements in one or two areas.

Of course I may be wrong, but if I am, I wonder why all the example knowledge bases supplied with Observess – 13 all together – range from the trivial to interesting but still pretty simple.

The real test is whether you can find a third party who is able to use it in a practical application.

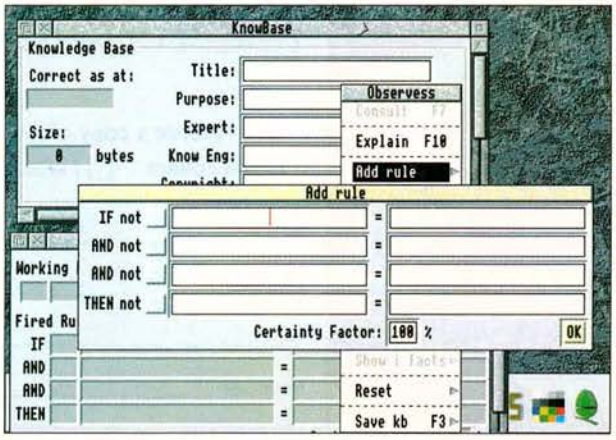
Summing up

Largely by its uniqueness and low price, Observess is still good value and well worth buying if you are intrigued by top-down Artificial Intelligence. However, I have yet to be convinced that it has any serious applications.

Also worth a mention for this low price, are the free or low-cost upgrades and the free newsletter regularly sent to owners.

PRODUCT SPOTLIGHT

Product: Observess 1.13
Price: £20
Supplier: Cherisha Software, 51 Shallowfield Road, Charlton, London SE7 7NT.
Requirements: RISC OS 3



● *Create your own rules and parameters*

NEXT MONTH

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We're off to see the Wizard

Michael Rozdoba sets out search of truth

THE wonderful Wizard of Wood Lane, down in the magical White City. So it doesn't scan, who cares? No one's reading this. Anyone seen BBC 2's *The Net*? Many months ago it featured a piece on The PowerMuc. Did you catch the in-depth explanation of how Acorn were first to commit to, develop and disseminate RISC technology? No, I didn't either. Nice one Beeb.

3D icons

Last month I promised Peter Coaker that I'd put him out of his misery. He's been tearing his hair out trying to find the mistake he has made which is causing several of his programs to intermittently hang his machine.

I should point out that TF is not in the habit of debugging other people's programs and tracking down specific faults – this takes a lot of time and effort. Nevertheless, in the case of Peter's problems I did take a butchers and you're going to love this Peter – it isn't your fault – it's Acorn's. Quite a well known problem in fact. I'll let them explain.

There is a fault in the Window Manager in RISC OS 3.1, as follows: If a button is visually pressed in, and this leads to the task or window that owns it being deleted, then a crash will occur.

The simplest way to solve this problem is that any button which can make the task or window owning it quit, should be given a border type of *R1* instead of *R5,3* – this will simply make it not move in when pressed.

An alternative solution is the BorderUtils module, which solves the problem in the Window Manager for the case of the task being deleted but not for the case of the window being deleted.

BorderUtils is not needed for any Window Manager later than the one in the RISC OS 3.10 ROM. Thus, it should always be loaded using:

```
*RMEnsure BorderUtils 0 RMEnsure
WindowManager 3.17 RMLoad  BorderUtil
```

You'll find a copy of the Border Utils module on the Megadisk.

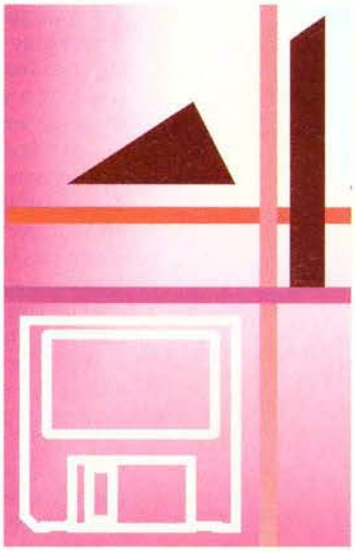
Menu help

Darren Salt wrote in from Stakeford, which is just down the road from where I live, and mentioned quite a few useful things including a shortcoming of Acorn's system for support of interactive help on menus.

If you bring up a menu such as in Edit and move over an entry which has a sub-menu, say *Misc*, you'll receive help on it. If you then move over its sub-menu and position the pointer just below the sub-menu's title bar so that no sub-menu item is inverted, you'll find that the help message reverts to that for the item *Misc*.

Such text will invariably be inappropriate – in this case it is telling you to move right to open the sub-menu, which is in fact already open. This problem also occurs if you move over a sub-menu's dotted line item separator.

Darren asks if anyone could write a patch to fix this, perhaps by modifying the output of *Wimp_GetMenuState*. Any such patch could only work with code that knows about it, and for new code this isn't necessary, as there is a simple way to avoid this problem.



The trouble with Edit – and any applications which use RISC_OSLib – is that it bases the message file tag for its help text solely on the results of *Wimp_GetMenuState*. This reflects the chain of selected menu entries and ignores the last opened (sub)menu if it contains no selected item.

However, these two cases do differ in the window/icon handle pair supplied by the help request message, and so this information can be used to distinguish them.

In the latter case, the icon handle will be -1, so you can use this as indication that the sub-menu of the parent, returned by *Wimp_GetMenuState*, has already been opened.

However, you can't use this directly to detect when a root menu is open with no selected item, as *Wimp_GetMenuState* must then return a null menu tree, which can't be differentiated from no menu.

If you use RISC_OSLib, and have the source code, it can be updated to support this system by adding another character to the message tag used within *help_genmessage*.

You might also like to add representations for generic menu help text – where one string can be used for all items in a given sub-menu – or to distinguish between cases where the relevant item is shaded out or otherwise, though to do this, *help_genmessage* will need access to the shaded status of the menu item in question.

You'll find a copy of the source code to my version of *help_genmessage*, on the Megadisk.

By the way Darren, no, I don't know of any local user groups – if there are any in the Bedlington/Stakeford area of Northumberland, get in touch and I'll pass the info on.

Stop me, buy one!

Don't forget, 42 may be the answer, but we have yet to discover the questions. If you have a question, it is your duty to society to write in, so do it NOW.

To: TechForum,
Acorn Computing,
Europa House, Adlington Park,
Macclesfield SK10 4NP.

Apocalypse

Mike Goldberg contemplates several ends of the world

WHEN I was a kid – and Spangles cost sixpence in old money – it was still a common sight to see the odd individual wearing a sandwich board with a message writ large on it.

Apart from *Eat at Joe's* there would be the more dramatic and prophetic *The End of the World is Nigh* bloke and this particular harbinger of doom was usually *the* most miserable soul roaming the planet. And no one believed him, perhaps that was why he was miserable.

Well, the end of the world seemed a long way off then but as the doomsday clock ticks ever nearer to midnight – I think it's down to a few seconds now – perhaps this chap had more foresight than he was given credit for.

I'd like to be there at the end (and afterwards) so I thought why not preempt the four runners at the Apocalypse Handicap and simulate several disparate endings to the planet we all inhabit – well, most of us anyway.

To this end (aha!) I have created a program called *THE-END* which displays eight ways that the Earth might perish. Simply press a key from one to eight to choose your favourite ending.

Apart from Armageddon, which is the most likely way humans as a species will disappear, there is the small chance of a shower of meteors large enough to inflict global earthquakes and tidal waves that engulf the planet. Think of the surfing possibilities on that day (*No thanks, I've read Lucifer's Hammer. Ed*).

Anyway, the method of Destruction One blasts holes everywhere with some consideration given to depth and shade of the hole. The position of each hole is determined by randomly searching the sprite area the Earth occupies until any pixel other than background black is found. The colour and tint of the pixel is noted so that the hole edge is forced to be the darkest tint of that colour.

A circle is filled at that point followed by a smaller overlapping black hole. Note that the coloured hole is ANDed to the screen (GCOL2, colour). This is so that the circle is "clipped" if part of it is not over the planet and over the background which is colour 0. Anything logically ANDed with 0 equals 0.

Casual destruction

Also some random points are plotted around the hole in various tints for added effect. This works better on larger, plainer coloured sprites, so try some of your own Mode 13 sprites. The sprite to alter or replace in the sprite file *Objects* is called *object1*.

Maybe the whole planet could catch a devastating virus, one so virulent as to be able to devour any material. Press 2 and watch the rot set in. Actually, the sprite is again randomly scanned for any colour pixel other than black and turned a horrid brown.

If a horrid brown pixel is encountered it is blacked out and redrawn one pixel below its former position. The result of this makes the Earth appear to wriggle and decompose and drop to bits! Let this slow-moving effect have a while to get going as I reckon it gets better the longer you leave it.

There's speculation that global warming and the greenhouse effect will cause irreparable damage to the climate causing many life forms to perish. All my greenhouse does is encourage growth so I don't know if I hold with that one.

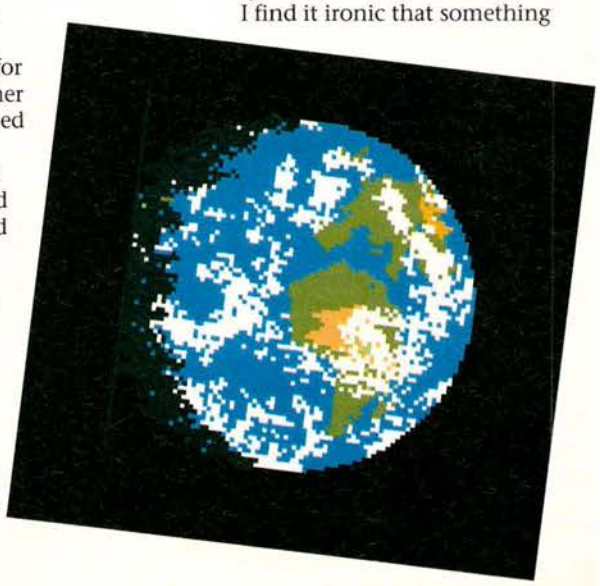
Maybe things could get really hot underground and everywhere erupts in streams of flowing lava and magma. Press key three to melt the world. This simple and less than convincing effect is just a series of differently tinted circles successively drawn, overlapping the previous in a downward direction.

Instead of just using red for lava the procedure takes note of the colour of the area from which the eruption begins so there's streams of blue and green as well as the red.

Talking of meltdown, it wouldn't surprise anyone if we blew the planet up with nuclear weapons or a giant radioactive leak from one of the ever-so-safe and friendly open-all-year-round nuclear reactors.

I find it ironic that something

● *Good old terra firma*



● *Global dandruff?*

now!

with the potential energy to destroy the Earth several times over is partly controlled by a computer program. Certain eventualities that never show up when you test and debug a program are always going to surface one day – the possibility of such anomalies depend on the skill of the programmer and continued good luck.

Where was I? Oh yes. Press 4 for the result of massive radioactive contamination and watch as the isotopes and particles drift off into space. The sprite's left-hand edge is scanned randomly until a colour other than black is found and then that pixel is moved left. This is repeated until the Earth crumbles in a slough of highly dangerous nuclear waste with no ground to bury it under any more.

One last thing on radiation. Ask any so-called expert the safe level of *rads* one can be exposed to before your gums turn blue and your hair falls out. Then ask again the next day. Compare the answers. I think the weather's more consistent.

Back to global warming. Recently Australia had its worst bush fires ever recorded, although the cause was probably more down to earth. There was that famous film too *The Day the Earth Caught Fire* where the world is enveloped in one huge conflagration – or it could have been a big fire.

Press 5 for a darting flame that eats up terra firma with more than a burning desire. By simply overdrawing three different flame sprites and then moving randomly the image is eaten away in vast scorching chunks. Actually, this sounds better than it looks, so come on, do it better (not difficult) and send me the disk so I can see that you're still paying attention and haven't nodded off yet.

Alien formation

Suppose there really are alien life forms out there. Would they really be planet-grabbing militants with nothing but world domination on their minds? Or would they be hyper-intelligent, altruistic beings with only kindness and the pursuit of knowledge as their raison d'être?

Well, I've opted for the green-blob-from-the-outer-limits notion of an invader from another galaxy figuring that computers and invaders somehow go together. Press 6.

This hungry little blob eats its way through the Earth, nibbling away in random movements a little at a time. The blob searches for pixels other than background coloured ones and has the appetite of your average locust swarm.

If the alien provided is not to your liking simply design three slightly different sprites called *grub0*, *grub1* and *grub2*. Yes, our visitor from beyond began life as a rather more prosaic common-or-garden grub but this is intergalactic technoflash we're talking here, not gardener's question time.

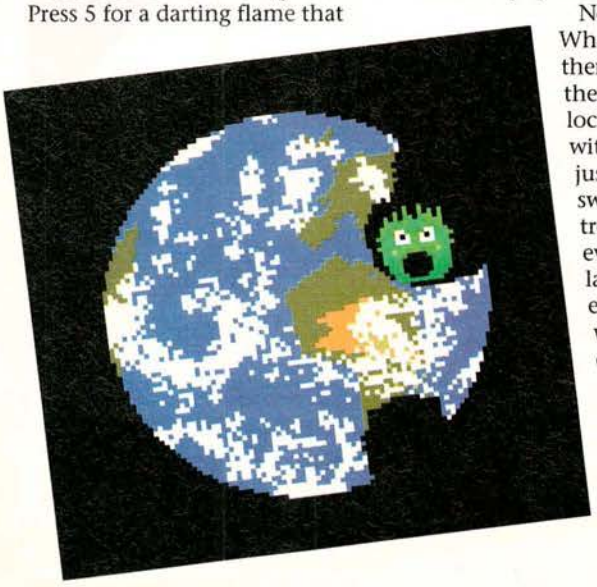
Don't feel you have to keep to the sprite size for your alien – design a galaxy-swallowing monster, there's one in every Star Trek series so they must be popular!

Now then, try 7. What's going on here then? Well, it appears there's global grid-lock. The planet's full with people and cars just endlessly swapping places and treading all over everyone's front lawn. Now that's the end of civilisation when you can't sit out in the sun and read your favourite computer magazine without the world and his dog trampling your delphiniums.

The sprite is divided up into small blocks by drawing a black grid over it. Then each block is randomly selected and swapped with another randomly selected block. Result? Utter frustration of the kind usually reserved for awaiting return calls from well known computer hardware manufacturers.

And talking of squirrels and things left unfinished, press key 8 for a final mystery annihilation that users of our machines should be well used to.

● *While I remember, you can press 0 to restore the planet to its natural beauty, well, Twentieth Century beauty anyway, about which little is natural, or, indeed beautiful!*



● *A bad case of the munchies*

● *Grid-lock – it's quicker to walk*

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En vacances

Those long wet summer days are about to start. How will you fill them? Teri Paul selects some solutions

NOW everyone knows that you can find a host of sillies and games within the public domain, but even the best game in the world can pall after a while and then what? With a stuffy head you may consider doing some weeding or painting the ceiling or, horror of horrors, resorting to the afternoon soaps...

Okay, enough, it's time to do something useful with your time.

Read all about it

How about getting away from your computer? Silly idea I know but as a possible compromise pick up a copy of **Lunchtime**. The latest issue is number five and this disk-based magazine is available for both the Amiga and Acorn machines.

Now you can read about anything in these pages – except computers. Lunchtime is a fanzine, a mixture of the interesting and immature with a smattering of Viz from time to time.

At times it irritates, amuses or informs, it depends on my mood. Lunchtime is well produced, and as I always look forward to my next issue it must have something going for it.

Back to school

PD libraries are a superb place to find help for a variety of subjects and there are more than a few people using their computers for revision or to solve particular problems.

An excellent selection of programs are available from Robert Seago. Now, you can't access a PD catalogue without falling over periodic tables, but **PTab**, now in version 2.05, is simple in concept and aim and succeeds perfectly.

This multi-tasking program is loaded from the iconbar of the program and displays a copy of the periodic table. For each element you click on, a window appears giving you a range of information from the atomic number to discovery date.

From the same author comes **Kinetic** – a simulation of the kinetic theory. Each of the particles represents a molecule of a material, one that has similar properties to water.

You can choose up to 40 molecules, moving in straight lines, until they reach a boundary, the wall of the window which they bounce off.

You can also change the temperature so that as they are heated they move faster, and as they cool they reach the point where they start to attract each other, to the extent that they stick together more and get pulled to the bottom of their Wimp container, by gravity.

As they are cooled you can see some contraction, until they condense into a solid where they are held rigid, but free to vibrate. Further cooling takes out all of their motion when they reach -273°C – absolute zero.

But Robert has also produced **React.** This is a simple reaction timer. You can choose sight or sound or both and the program prompts you to click the mouse in response to visual or audio stimuli.

There is an option to send you, at random, one stimulus or the other. Times are recorded and can be saved as text files, with the average response times worked out for you.

These can then be made into TSV or CSV format and put into a spreadsheet or graph for further analysis. Plans for a later version include the ability to save directly as CSV bites.

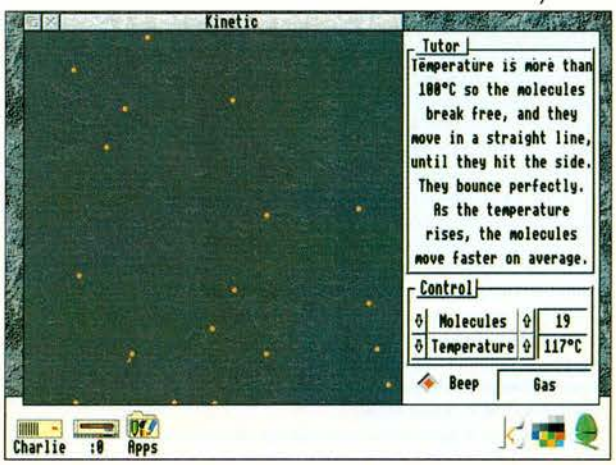
Whether you're nautical or not ➤

Programs this month

Program	Supplier	Code
File Splitter	Datafile	
Kinetic	Data Stream	UM-019
Lunchtime 5	Lunchtime	
Ptab	Data Stream	UM-019
React	Data Stream	UM-019
Status	Gem PD	
Tides	Data Stream	UM-019
Type	Data Stream	UM-019
WimpMon	Gem PD	

● *Lunchtime – all you wanted to know about Australian federalism...*

● *...but were afraid to ask*



● *Kinetic Theory – see for yourself*

➤

take a look at **Tides** which aims to predict the tides. This version is not totally accurate but according to Robert it usually seems to be within an hour of the correct time at Clacton.

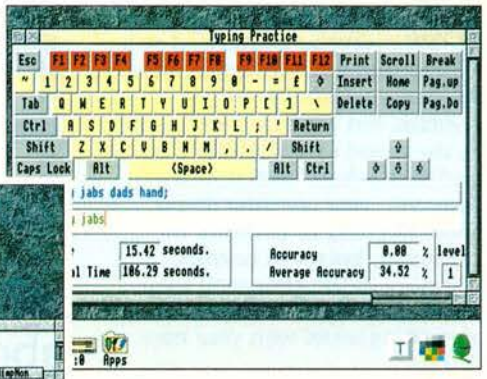
If you want a customised version for your coastal town/village/hamlet, send him the difference in time of tides between there and Dover and he'll concoct a program for you. If anyone plans to walk around the coast this year, I'm sure the data would be of interest...

Ten good, two bad

Hands up those of you out there who plug away at DTP, programming and bulletin boards with two fingers? I know you've probably promised yourself that you'll break the habit someday and learn to touch type. But the cost, time...

The time is down to your inclination, but the cost I can do something about. **Type** is a simple program which will allow you to learn to type at your own speed, as the key is practice.

Now, this program won't introduce you to the principle of *home keys* but you could easily alter the text files which contain the lessons to follow a specific course.



● *Improve your keyboard skills*

● *Win-Mon helps with both monitoring and trapping*

If you can type but need speed this program is useful as it stands with the keyboard on screen and a series of letters and then words which must be typed. When you press Return your time and accuracy are updated. Missed or extra characters affect accuracy but not deletes, so keep your eyes on the screen rather than the keyboard.

Programming for wimps

Summer is also a good time for finishing – or beginning – those projects you've been meaning to start since last year. There are a huge number of programming utilities out there so you've really got no excuse.

Utilities in the PD – and now more commonly *freeware* meaning it's free (like PD) but you can't hack it (unlike PD) – have usually been written to solve a particular problem and cover weird and wonderful situations that no commercial product would economically be able to cover.

Do beware – I have come across a few programs recently which are commercial in origin and I'm sure their authors and publishers would be less than happy about this.

On the freeware front there is **WimpMon** which needs RISC OS 3. It loads on to the iconbar, and provides a window for the details of events being monitored. The main menu allows you to select which events and tasks to be included in this monitoring.

The menu of tasks is automatically updated and if you choose the *Catch New* option new tasks are monitored as they start up. This option is useful if you wish to trap events being sent Filer action windows, which only exist for short periods of time. All activity can be logged which I have found invaluable at times.

Also freeware is **File Splitter** – which needs a hard disk – and both splits and joins files. To split your large file drag it on to the iconbar and you'll be presented with an options window.

It is here that you choose the sizes of your split files opting for 800k, 1.6Mb and your own customised size. In truth, the first two options are slightly less than they pretend to be to leave enough room for a catalogue.

You can also decide in this window where to put your files, whether on to floppy, with the program prompting you for a new disk, or into a directory housing the source file. All pretty straightforward really.

Putting everything back together again means dragging a target directory on to the iconbar icon, where a window will appear telling you how many files have been joined.

As your floppy disks are loaded you'll be told how many have been done, and how many there should be. A nice touch is a warning if a file is not a split file, or if you've dragged them in the wrong order. Remember though that you can join and split at the same time.

● *A file ready to be split on to various floppies*

PD LIBRARIES

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8-bit Software, 17 Lambert Park Road, Hedon, Hull, East Yorkshire HU12 8HF.
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ARM PD, 109 Woodland Drive, Cassiobury, Watford WD1 3DA.
ARMistic PDSL, 136 Wellesley Road, Ilford, Essex IG1 4LJ.
Craig Beech PD, 30 The Deerings, Harpenden, Herts AL5 2PE.
Datafile, 71 Anson Road, Locking, Weston-Super-Mare, Avon BS24 7DQ.
Datastream, 34 Norbreck Close, Great Sankey, Warrington, Cheshire WA5 2SX.
Different Ideas, Eyton House, Eyton, Leominster, Herefordshire HR6 0AG.
Digital Phenomena, 104 Manners Road, Southsea, Portsmouth, Hampshire PO4 0BG.
DigiTech, 20 Downing Crescent, Bottesford, Scunthorpe, South Humberside DN16 3LS.
Eureka PD, 78 Rawlinson Road, Southport, Merseyside PR9 9NE.
Gem PD, 15 Partridge Down, Oliver's Battery, Winchester, Hampshire SO22 4HL.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
LowCost PD, 6 Furzeland House, Sheephouse Way, New Malden, Surrey KT3 5PH.
Lunchtime Disk Magazine, 203 London Road, Chesterton, Newcastle, Staffs ST5 7HF.
Moonlight Graphics, PO Box 3569, Cape Town 8000, South Africa.
Naked PD, Fayence, Fulford Road, Fulford, Stoke-on-Trent ST11 9QT.
Planet PD, 37 Manor Drive, Berrylands, Surbiton, Surrey KT5 8NF.
Skyfall, PO Box 2220, Birmingham B43 5RZ.
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Pawn

I LEFT you last time in our solution to *The Pawn* having mixed the colours to create a White, thus providing our light source and now it is time to journey onwards a little to see what we can find.

One move south from the clearing puts you in a location described as a Rank Forest, where you can see a dotted red line and a notice board proclaiming that this is the southern boundary of the adventure. More interestingly, there is a tree here which is described as climbable: So, what are you waiting for?

Climbing the tree takes you up to where there is a wooden door set into the west face of the tree trunk and, since you have a wooden key, it's time to use it. Don't forget to specify that it is the wooden key you are using. Open the door and enter the tree by moving east.

Inside the little room you can see that one of the floorboards is loose. If you try to lift the board you'll be told it is too heavy, but, if you close the door and try again, a dark forbidding opening that leads down will be revealed.

Don't be silly, of course we're not scared – not much, anyway. After all, the fact that a pawn is wossname, expendable, is neither here nor there.

One move down takes you to the staircase room – the illustration reminds me of my throat after a rough night out – and you have to go down again.

Although you are then told that there are exits in every direction, for someone of your size, the choice is east or west. We don't want to get involved in politics just yet, so go west folks.

Arriving at the crossroads, some helpful writing on the wall tells you that a residential area lies to the southwest – that is our destination. Now open the door to the underground abode and enter it by moving west.

Inside the lounge you can see a settee and a yellow hard hat hanging up. Examine the settee to find a cushion, then lift the cushion to find a coin: Take it. Next take and wear the hard hat and leave the room by moving east.

Go back to the crossroads and then move NW to a passage where there is a lift door, a button and a

For Elitists, only

I've got a mass of letters going back well over a year on Elite and so, apart from smaller items, the rest of the column will be devoted to these in no particular order because, once the lovely new Risc PC is in general circulation, we can add Elite 2 and a zillion adventures to this column. I am saving exceedingly hard and can't wait to dump my 386PC on my sixth-former son.

Paul Mason has been peeking around in ArcElite, and has found more missionary messages than I have currently come across. I guess we all know the pious triple 'Repent', and 'Repent Sinner Repent' exhortations, but he's also come across, 'Why was the kangaroo happy?' and 'Why did the Groigan dance?'

Paul has also been deducing the nature of Mission Four. This involves a potentially hazardous trip to aid perishing Groigans on behalf of GalFam.

Incidentally, there's been a few queries about that Mission – basically to do with where and how it is triggered. I've got to confess that I don't know the answers, because I set myself limits as to what I would ask Warren or Clive so as not to spoil my own enjoyment to the game. Can anyone provide a definitive answer as to where and how Mission Four is triggered?

A number of you have asked what tactics I employ. Currently I am nearly through visiting every system in Lara'tan Galaxy. I scoop a little fuel, belt a few baddies and sell a touch of recovered cargo – you know the kind of thing – in an attempt to turn an honest credit and gain a little status. I'm still only Very Deadly, which I suspect is due to taking time off for adventures and even Elite 2.

Lastly, from Paul, he occasionally meets a pirate who appears to have extra shields and says that the quickest way to clean up your record is to bounty hunt in an Anarchy system – but he's not sure if this is simply due to the extra kill-opportunities or if bounty hunting in an Anarchy system gives your halo an extra polish. Has anyone else come across these phenomena?

More on ArcElite crashes involving A3010 machines: Julian Pickering found that the problem – mostly involving nearby Missionaries – went away once he had fitted a hard drive. I'll quote one paragraph from his letter in full, though.

'In my case, Elite does not hang the machine, it just exits to the desktop with the message Elite has suffered from a fatal internal error (type=5), and must exit immediately.

However, if you were looking at one of the external views – which involves shadow-screen animation – the error box and the desktop will be drawn in the bank which is not being displayed, resulting in an apparent lock-up.

To recover you only need press Return (to accept the error), then F12, then Return again, which redraws the desktop correctly. The only solution I found was to save the position every other trip and to avoid getting anywhere near Missionaries.'

Now for some comments and then two questions from Julian. Try selecting a planet with a moon, press F7, switch to another screen and then back to F7. The moon will appear in a different position each time.

If you are a Fugitive, your docking computer simply flies you round in circles. If you destroy an entire set of space beacons

to Elite four

message asking if you are wearing your hard hat.

You can be certain something is going to drop from a great height somewhere along the line. Push the button and wait until the lift arrives. You cannot operate this door using the command *open* and you have to enter *pull door*.

Push the door to close it and then take stock of your surroundings. There is a rope which you should ignore for the moment, and there are also two buttons. If you push the first one nothing happens, so push the second one. Down you go. At the bottom, pull the door to open it and leave the lift.

The sky – well the ceiling, anyway – falls on your head, making you dead glad you aren't Chicken Little and some lumps of lead are revealed. Yep, you've been through all that hassle just for some leaden lumps.

You'll need to use the trowel to get the lumps, but once you have done that it's back into the lift and up again by pushing the first button this time. Once the lift has stopped, pull the door to open it, take the rope and leave. And that's where I'll leave you for now. More next time.

Hatter's helpline

Here are more of John Forester's general tips for the RPG game *The Dungeon*.

Forward movement through the dungeon is slightly quicker using the mouse. This is useful in solving certain puzzles. Try and move the characters between the front and back rows while fighting in order to get a constant stream of hits against a monster. This is made easier on non-ARM3 machines if you select ARM3 mode while fighting.

Don't forget to upgrade your weapons – staffs at the start, then short dagger, nasty dagger, cudgel and so-on. If a pad is affected by monsters and objects, leave an object on it to stop monsters from doing anything to it.

Map out each level and work out what has to be done on it. Then restart the level and complete it as quickly as possible. Make regular saves and keep permanent ones for the start of each level.

Shouts for help

Kevin Hallam is stuck in an adventure called *The Mirror of Khoronz*. This is an adventure I vaguely remember, but I've got nothing about it on file at all. So, can one of our band of readers help, please?

Kevin is in the Castle of Wonders and has found a chessboard with faint lettering on it and a single knight. What's it all about? Also, he's bothered by the electromagnet fouling up his compass once he has crossed the pit at the end of the castle. How does he prevent this – or fix it afterwards?

you'll not be able to dock in that system.

What's the most profitable trading route in Santaari? Dunno. Can your combat rating go down? Not that I know of. You are right about the equipment, Julian.

Matthew Burke wrote an amusing letter with a tip and a couple of questions. Tip: Kill points are easily accumulated by carefully positioning yourself just outside a Space Station. Fire a single shot into the letterbox and mop up Vipers one by one.

Finally, emigrate to a non-Anarchy system. Younger son does this until the Space Station is clean out of Vipers. Personally, I scorn such low behaviour – what would the little old ladies in my congregation think?

Matthew is Mostly Harmless and wealthy but hasn't triggered the first Mission, yet – you need to be in Santaari Galaxy, mate. Lastly, what adventures do I recommend? Anything by Topologika – P.O. Box 39, Stilton, Peterborough PE37 3RL – is of the highest quality. Drop them a line for a list of those available.

Commander Bonner is one of a rare breed, I suspect: He uses a joystick – with RFTM controller board – for flight in ArcElite. He warns, though, that whenever you are using the keyboard or joystick to play the game, while input is being detected you cannot operate your ECM equipment or fire a locked missile.

He also reminds us that using ECM lowers the energy banks. I find this useful if I want to commit quick suicide and go back to a previously saved position.

Roger Smith runs Elite on a BBC B with a second processor – that takes me back a bit – and gives what may be the definitive account of how to enter Witch Space using the Superior disk version. Again, I think a verbatim quote is in order:

Pressing X while the game is frozen actually toggles the game between normal mode and X-mode (for want of a better term). If you start a new game (Esc while frozen) the opening display includes the line By D.Braben and I.Bell *if the game is in X-mode.*

To get into Witch Space, enter X-mode, start the hyperspace jump (H) and then hold down the Control key until the jump occurs.

Two lads from Stranraer asked three questions concerning ArcElite: How many Missions are there, should they stay in the same galaxy or move on and is there any equipment, apart from what you can buy and the two rewards?

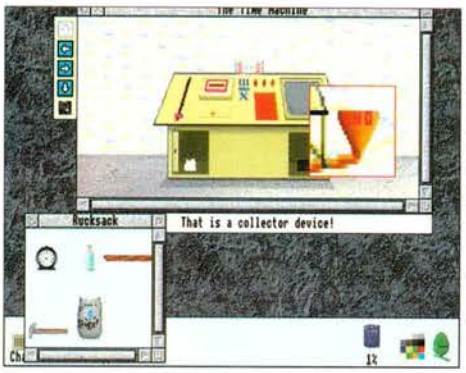
Answers – as far as I know are: a) four, b) move on, my friends and c) no. I am open to contradiction, though. They also note that, in ArcElite, Thargoids can be energy-bombed.

Andrew Holland reckons that the only decent opposition is provided in Mission 2 when you are up against old hairy Zartid. Andrew got police help the first time round, so went back and did the job all over again by himself.

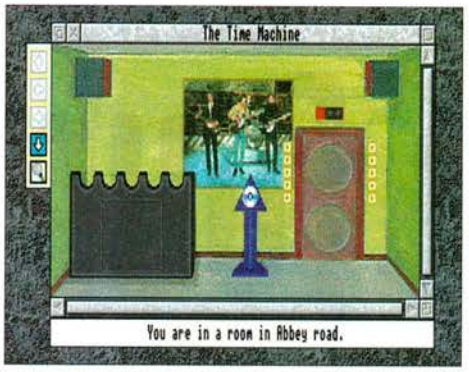
That's what I call dedication. Andrew wonders what the letters *mta* stand for after Zartid's name. Dunno – but I'll include the best-funniest (printable) ones in a column if anyone feels inventive.

Finally, Alan Gibson had a clear-out of old papers a while back and he's sent me printouts of screenshots showing our old friend the Mystery Ship in Elite. If there's ever space I'll try and include them.

Happy hunting.



● *Filling the collector devices is one of your first tasks*



● *By now you should be accompanied by Eleanor's tombstone and a yellow submarine*

● *What you throw away here will have repercussions in the future*

The Time Machine

...past perfect, past historic

I HAVE to admit that I am a sucker for adventure games and for me Haunted House was a breath of air much needed in the Acorn market. So I was extremely pleased to see The Time Machine arrive on my desk. Very similar in format to its spooky forebear and also created by Gordon Key, it comprises a completely different style of puzzle.

If you loathe puns The Time Machine is not for you. The ...er... *tardis* which appears on your iconbar is in fact a Portaloo and not a police box, but Dr Who fans will recognise some of the props and sound effects.

Now I didn't start well as it took me a good half hour to work out the first password to unlock the door. A hint here, don't turn the sound off on your machine, listen *very* carefully to what you are being told and then *look* closely at the door.

Most of the clues/puzzles have a scientific or mathematical bent and I found most enjoyment playing this game with a group of people – try to get someone with a mathematical or programming bent and someone else with a warped lateral mind. Without question the puzzles are all extremely logical – once you know the answer.

The scenario is extremely simple. You must rescue the rightful owners of the time machine from a particularly nasty time vortex. This is done by finding six segments which make a key to time.

These are scattered throughout the universe, leading you to visit locations such as Mars, Dune – I'm sure the worms weren't that cute – Automatia and Abbey Road. If the Beatles are not your forté, grab a suitable relative as the creators know their *Fab Four* trivia.

But before you start zipping all over the universe you'll need to get the time machine up and running. The flux capacitor – sorry, wrong one – *inductor* must be created and the controls loaded with power and water.

Be careful with the puzzles that require you to put objects into or on to others. Anything which hits the floor in the Portaloo disappears. Safe areas are the shelf and green mat.

Manage to get the machine running and you'll find that you can only travel to a volcanic Earth several millions of years ago, or to a more recognizable world as humanity starts to develop. Within these environments you must create and polish a ruby/corundum to give your time machine time and space travel.

The puzzles require you to know your elements, the solar system, handle word association and above all logic – the musical clues are very crafty too. The graphics are reasonable, the sound well-integrated and the gameplay difficult but not impossible.

Personally I think some of the initial teasers may stump a number of people – they did me. However, a crib sheet is being prepared by 4D and as with all of these types of games, once your mind becomes attuned to the creators' you'll be on a roll.

The more I got into the game the more hooked I became – recommended for many sleepless nights. Back to the pyramid of Guttak for me and to that hidden room in Dune.

Pam Turnbull

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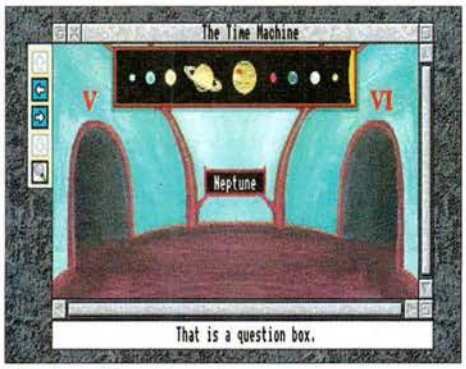

● *Automatia will need you to know the solar system*

● *Clues are all around*

● *Finding your way out is not easy – thank goodness for the fly spray*

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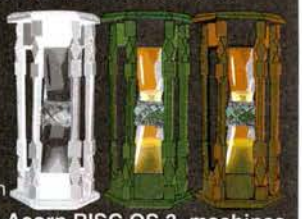

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The sands of time

Graham Keeling sees what Chalksoft have to offer junior historians

THIS particular area of history, full of gruesome facts and amazing figures, is usually a sure-fire winner with any Key Stage 2 child. After their success with the Ancient Greeks, it was only a matter of time before Chalksoft were to develop similar software for the Egyptians.

Again, we are presented with a time machine that allows us to choose specific times and places to investigate. We travel down a time line which illustrates key events through history as we pass. Once at the site we can read text files and study pictures before returning to the present day or staying to play a game related to the place being investigated.

Actually, this software is not *similar* to the Ancient Greece package, it is *identical* apart from the pictures and text which are about Ancient Egypt and not Ancient Greece. Some small improvements have been made to the original software and these are very welcome.

Firstly, when travelling back through time we are treated to a pleasant tune rather than a meaningless whine from the speakers, and on returning to the present day we do not have to go through the time line route but are able to skip back to modern day Cairo direct.

Places to visit include the Nile delta in 2700 BC. After learning about food production we have to navigate a sailing boat up-wind along a tricky stretch of the Nile.

Being told that the Egyptians actually used oars did not help our efforts with this task, but the boat does in fact respond in a life-like manner to tacking up-wind. After a few minutes I became quite fascinated by the way the boat would respond to the movement of the mouse.

After visiting Saqqara in 2630 BC we had to build our own pyramid. Not easy!

A visit to Giza in 2500 BC ended in our rebuilding the sphinx, while 1250 BC's visit to Abul Simbel had us all working as charioteers to race across the desert.

The game of Sennet features in the visit to the Nubian desert, but perhaps the most interesting visit of all is to Tutenkhamon's tomb in 1922. Here we become Howard Carter and search the desert for artifacts.

Finally, the Cairo quiz allows the children to test their knowledge. There are 21 varying questions presented upon a map of ancient Egypt. This allows the children to see the distances and relative positions of important places in the story of the Egyptians.

Coming in a smart plastic folder, the package does not have a manual but an A4 piece of paper full of fascinating ideas and suggestions. Given that so much information is available from other sources Chalksoft have been quite sensible in keeping the cost of this particular package down to the minimum and letting the software do the talking.

This package will not tell a group of children all they want to know about the Ancient Egyptians, but it will give them a fascinating insight into a few of the less well-documented aspects of their lives.

A glossary allows key words to be explored while the program's strict adherence to RISC OS conventions makes it an ideal piece of software for any children new to Acorn machines.

The use of digitised images and copies of original ancient art work give the program the right feel, even if some of the images and maps suffer slightly from lack of definition in the crude fact file sections.

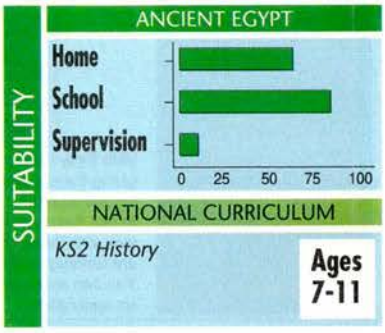
● *Travelling back via the time line is all part of the experience*

PRODUCT SPOTLIGHT

Product: Ancient Egypt
Price: £25
Supplier: Chalksoft, PO Box 69, Spalding, Lincs PE11 1NZ.
Tel: 0775 769518

Summing up

Ancient Egypt is a well thought out piece of software which will help children to discover for themselves some of the fascination of this period of history. It should sit alongside Chalksoft's Ancient Greece as a standard software text for KS2 history.



● *Digitised images are used effectively*

Marvellous molecules

Software for science teachers is put to the test by Rog Frost

MY SECONDARY science teaching colleagues have been asking, for years for a piece of software which can easily produce molecule models. Their eyes lit up when I showed them the modeller program from Arachne.

In case anyone might wonder what this software does, it creates on-screen models of molecules. These can be shown in a variety of forms – ball and stick, space fill, bonds only – with or without shading to give a 3-D feel to the images. The pack includes a pair of those red/green specs because one image is in the required form to be seen as genuine 3-D pictures.

All styles of molecule can be animated on screen to show rotations. They can be saved off in the program's own format – ideal for reloading – and also as draw or sprite files which can be used within DTP applications.

Fast animations can be saved too, which is useful since it takes some time to calculate positions for movie sequences. The speed at which an animation runs can be controlled by the movement of the mouse.

● *This might help you stay awake! A standard ball and stick view of a large molecule. The toolbox can be configured to suit your own needs*

A piece of software like this, though, is only as good as its creation and editing facilities. Molecular Modeller is certainly complex and it takes quite a while to get to grips with all its facilities. When you've learned them, you'll find you have an amazing array of tools to assist with the task of creating molecular models.

Most people will probably find it easiest to display the built-in periodic table and select elements from there. Atoms of these elements can then be *clicked* on to screen, with or without bonds to neighbouring atoms.

Bonding is carried out intelligently, either the program knows suitable bond angles or it will guess, based on relative sizes of atoms. If the user knows more than the program, the angles can be tinkered with by hand until the perfect effect is obtained.

At first I thought the parser was a bit of a pain. Perseverance taught me how useful it is. Selecting this menu item brings up a one line dialogue box and users can type a suitable structure into it.

It is not enough to enter a molecular formula, such as C3H8. This structure has to be entered as H3CCH2CH3, producing an instant drawing, but this is only useful if you already have some knowledge of molecular structure.

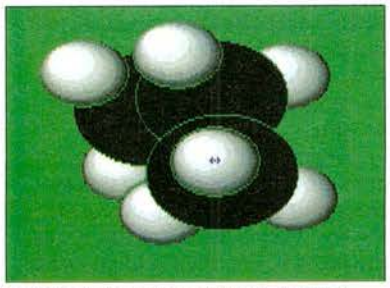
For those who might be keen on the program for organic chemistry, the parser can cope with double and triple bonds, but not with ring compounds except carbon rings.

Indeed, many examples are available as fragments. These are common groups which can be loaded from disk to save the bother of re-drawing. Regular users of the program would clearly want to increase their own library of such fragments for future reference.

Having created a molecular masterpiece, there are a bewildering number of ways of displaying the image which should suit all kinds of monitor and computer.

Atoms can be dithered in colour to create a 3-D effect. This, ideally, needs a fast computer and a good monitor. Alternatively, atoms can be simple in shape and colour – more suited to those of us with more modest systems.

The program all fits on one 800k floppy disk. A second disk is supplied which contains a collection of ready-made molecules. Further thematic disks can be purchased from Arachne.



● *Dithered colours give a 3-D effect to a propane molecule*

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0 25 50 75 100

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PRODUCT SPOTLIGHT

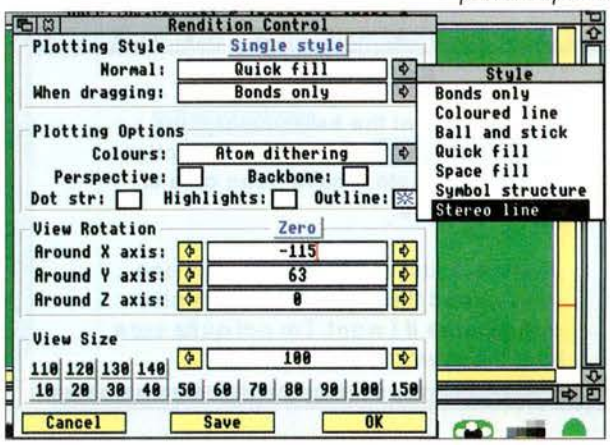
Product: Molecular Modeller
Price: £49.95
Supplier: Arachne Software, Orchard Cottage, East Moreden, Wareham, Dorset, BH20 7DL.

Summing up

Molecular Modeller will have a limited market and secondary schools and colleges will undoubtedly find it useful. It is a shame that it will not get a wider audience because the program has an impressive specification.

It has certainly met the needs of my colleagues, who have found it a real boon to be able to include molecule drawings within their worksheets. I look forward to more programs of this quality from Arachne.

● *The display menu gives dozens of possible options*



The bear

BEAR Words is a recent addition to the Educational Resources in Computing (ERIC) catalogue. It's a word processor and DTP system and the aim here is plain. The packages currently available to the primary school – PenDown, Junior Impression and so on – have a complexity about them that can put some teachers and children off getting to grips with DTP.

Bear Words takes a child-centred, rather than a technology-centred approach, focusing on what you need rather than what the machine is capable of. The question has to be: Have they succeeded in filling this gap?

The package is fully RISC OS compliant and while loading, single users will get a rather dramatic message about damage to their machine if they try to copy the disk.

You also get a license window on the desktop that cannot be moved and stays until you quit the program. Both of these seem unnecessary distractions, but copyright is important and companies must protect it.

Clicking on the Bear Words icon opens a window on the desktop with the program operating at its elementary level and with a default page layout loaded.

The arrangement of the window is just what you would expect. The ruler and relevant icons appear at the top and the work area beneath. The work area is divided into boxes and you can move into any one by clicking, then just start typing.

With the exception of changing boxes, just about the whole thing can be controlled from the keyboard. It's a shame about that exception, but even without it Bear Words is a good package for those who have trouble controlling the mouse. As it is RISC OS compliant, it should also run well with an overlay keyboard driver.

The icons along the top of the window are reasonably self-explanatory and can be accessed either with a mouse click or a function key. According to the manual, the Help icon will open the Acorn Help application if it is loaded, but this does not seem to be the case.

However, Help does work when started from its icon and pressing F1 gives a Keyword Help box which looks useful but is not documented.

At the elementary level things are kept nice and simple. There are only two sizes of text, which can also be made bold, italic and underlined. Text can be aligned left and centred and the spacing changed, the date can be put directly into the text and the document printed out. A dictionary function is to be added to later versions.

Saving and loading is by standard dragging, though RISC OS 3's save boxes make this easier.

Text is marked in the usual way by dragging the mouse, though you don't actually see the highlighting until you release the mouse button, which is not so good. Marking is easier by using Adjust to mark between the carat and the pointer but the manual does not mention this.

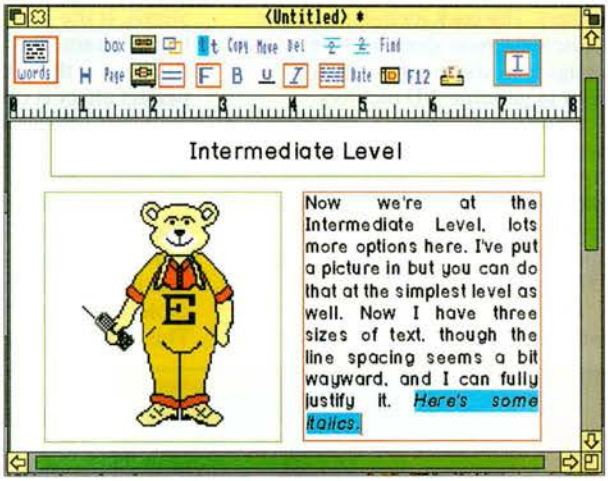
Page layouts can be chosen from a small scrolling window and added to the document and there is a good enough range available to make it unlikely that you will need to create your own for a while.

Pictures, sprite or drawfiles can be dragged into any box at any time. At this elementary level they will automatically be sized to fit the box chosen, with all proportions kept correctly. You have to be a bit careful with loading pictures at this level. If there is text already in the box the picture is loaded beneath it and, as the text has a white background, the picture will not be seen.

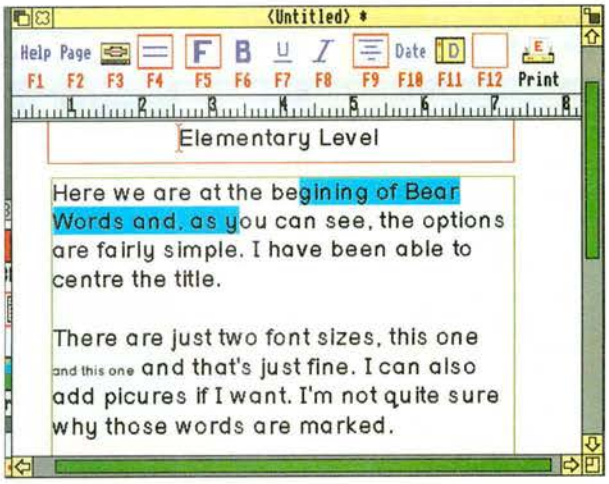
There doesn't seem to be any obvious way of correcting this at this point – even if you delete all the text the background still covers the picture. The trick is to go to the borders part of the menu and

PRODUCT SPOTLIGHT

Product: Bear Words
Price: £36.55
Supplier: Educational Resources in Computing (ERIC), Pepabera, Findon Road, Findon West Sussex BN14 0RD.
Tel: 0903 872400



● *As you progress more options and facilities become available*



● *Levels of technology are available for different children's needs*

necessities

Marshal Anderson looks at a DTP system with education in mind

change the background of the box to transparent but, again, this is not mentioned in the manual.

Clicking Menu over the document brings up a simple menu. To a large extent this duplicates the icons at the top and so provides a good introduction to using such menus. In addition to this duplication you can also set borders for each box from the menu, choosing from a range of eight available.

It is from here that you can also change the scale of the document on screen. This elementary level will provide just about every function you would want for an infant word processor. The levels can only be changed from the icon menu which is a good idea as it stops children accidentally doing this.

There's a couple of things worth noting here about the way Bear Words deals with levels. You can change them at any time without affecting the document. This means that you could use the advanced level features to create a page layout and then change it down to elementary level for the children to use.

When you save, the level is not saved with the document so there is no automatic switching of levels when a document is loaded. This means that you might have to keep an eye on things if you have children working at several different levels within the class.

The intermediate level adds several features. Marked text can now be explicitly unmarked – at the elementary level the software decided when to do this.

You can also copy, move and delete text, though at first this seems to be restricted to copying and moving within a box. Copying between boxes can be done by using the save marked text feature and dropping the resulting text file into the new box. Again this is not documented.

Three font sizes are available and you have more control over the graphics. Pictures can be made to fit the box into which they are dropped so that the aspect ratio is adjusted. This can give rise to some interesting effects. You can also remove either the art or text from a box.

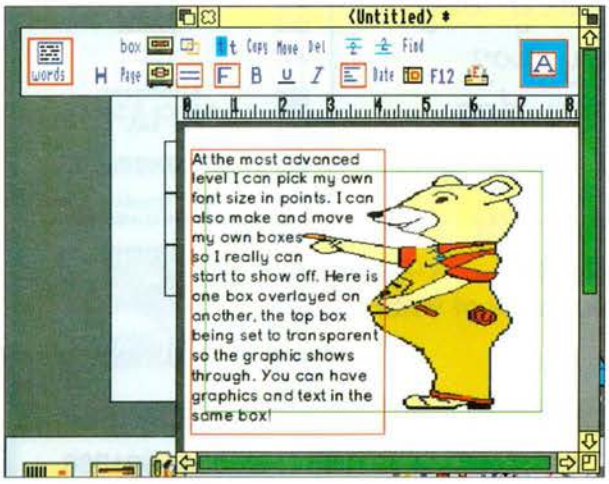
At the advanced level you get a lot more control over things. You can add, delete, move and create boxes which can overlap, so page design it totally up to you. You can also chose any font and font size you have on your machine, and add French accents. At this level you really are dealing with a powerful package.

Summing up

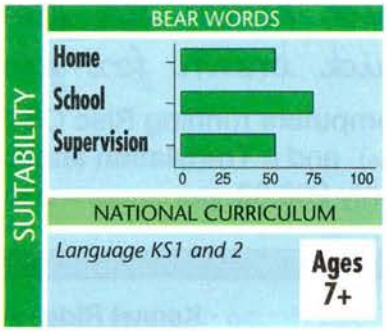
So does it make the grade? Well, maybe. At about the same price as PenDown and a little cheaper than Impression Junior, Bear Words does not offer their power, though it has a more DTP approach than PenDown. What it aims to provide is greater ease of use at specific points in a child's development, with less technical hassle for the teacher.

If you can deal with the technicalities then Impression Junior will do the business, if you don't need the DTP options then PenDown still has the edge. If you want DTP at infant and lower junior level, Bear Words could fit the bill.

The problems with it are not in the approach but in the actual implementation. The manual is clear but lacks depth, the icons are not always helpful and the software itself tends to fall over when used in conjunction with other packages. Perhaps we have a case for a second version here.



● *At its most advanced, it is a powerful word processing/DTP tool*



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Coining it in

Mike Cook learns about looking after the pennies and letting the pounds count themselves

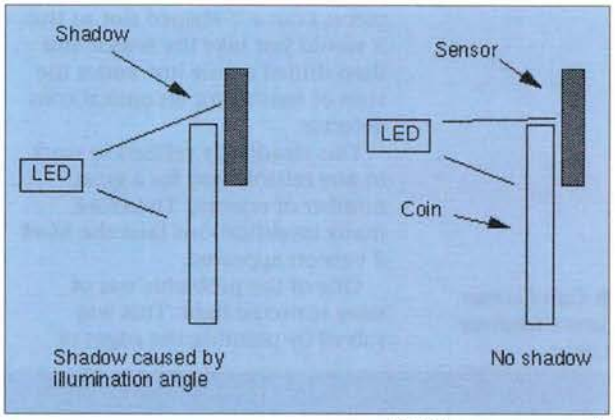
HAVE you ever wished you had just kept your mouth shut? Well, this month's project comes courtesy of me not doing just that. It all started when Alec and Graham arrived back from our local branch of the N&P Building Society with brand new money boxes. These were rather different to the pot pig type as they sorted the money into nice neat piles. I said we could get the computer to do the same sort of thing and add up the total – that was enough. Alec was in *mither* mode, so the project had to be attempted.

Now it sounded easy. However, one thing I have learned over the years is that if something sounds easy you might just be able to do it, the slightest hint of tricky and it is just impossible. All we have to do is to measure the diameter of the coins as they roll past a sensor and you can work out their value.

So the first thing I did was to measure the diameter of all values of coins. Sure enough there is sufficient difference in the diameters to measure comfortably.

One surprise was that the 20p and 50p coins had a constant diameter – because they are not circular you might think that the diameter varies depending on where you measure it. This is not the case as there are an odd number of sides, so the peak on one side is compensated for by the trough on the other.

You can see that the coins have a size difference of 12mm between the smallest, the 5p, to the largest, the 50p. However, in order to distinguish between different coins we do not need to measure the diameter of the smallest and the largest. The dynamic range of our measurements need only be between the 1p and 2p coins.



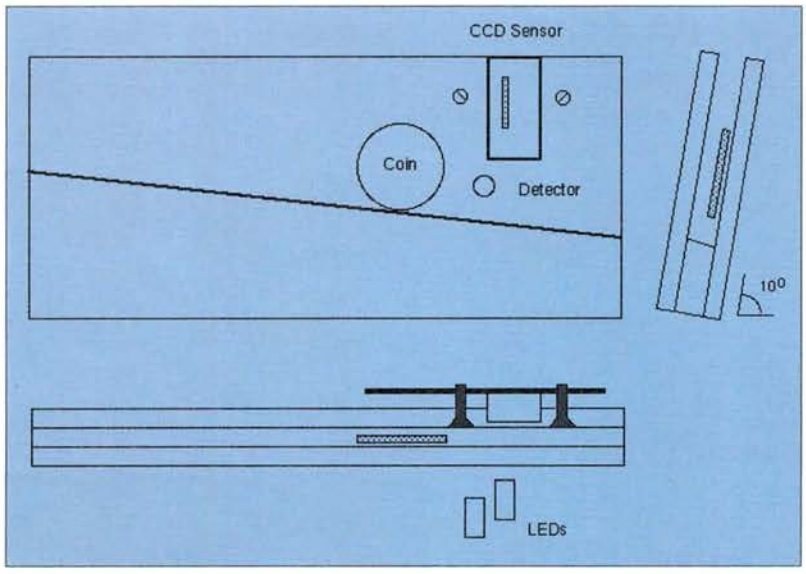
● *False measurements caused shadows from low level illumination*

Let me explain. If we have a detector determining when a coin had passed it, and another one measuring the size, if it measured larger than a 2p we would know it must be a 50p.

Similarly if it was smaller than a 1p the coin has to be a 5p. You see there is no need to actually measure these coins, only the one in between. Now that brings our dynamic range of measurement from 12mm to 5.6mm and makes the task so much easier.

Now, hands up if you remember last August's project. This introduced a CCD array sensor that seemed ideal for the task. The sensor consists of 64 light-sensitive elements spread out over a distance of 8mm.

This is within the dynamic range we require and as each element is 0.125mm apart we have sufficient accuracy for our ➤



● *The mechanical arrangement of the coin counter*

measurements. The project sounded a doddle – just roll the coins past the sensor and measure the number of sensing elements that went dark. Well, in essence that's what you do, but it took several goes to get it right.

I first made a sandwich of three pieces of perspex with the centre piece the same width as the widest coin, the £1. The centre piece was made sloping so that the coins would roll down nicely and the pieces were bolted together, along with two small right angle brackets.

Then in one of the outside pieces I cut a U-shaped slot so that it would just take the sensor and then drilled a hole just under the strip of sensors for an optical coin detector.

This steadfastly refused to work in any reliable way for a great number of reasons. Therefore, many modifications later the *Mark 2* version appeared.

One of the problems was of stray scattered light. This was solved by painting the edges of the perspex sheets with black enamel paint. You could really see the effect of the light scattering, because when three edges were painted the fourth looked totally different.

To be in total control of the illumination I fitted an infra-red filter in front of the sensor and used infra red LEDs on the other side of the chute. In fact I needed to use three of them to get even illumination, because I found I was getting a shadow effect.

Finally, the width of the chute needed to pass a £1 coin. This meant that thin coins, especially the 1p and 2p, could lie in the chute in different ways giving different readings.

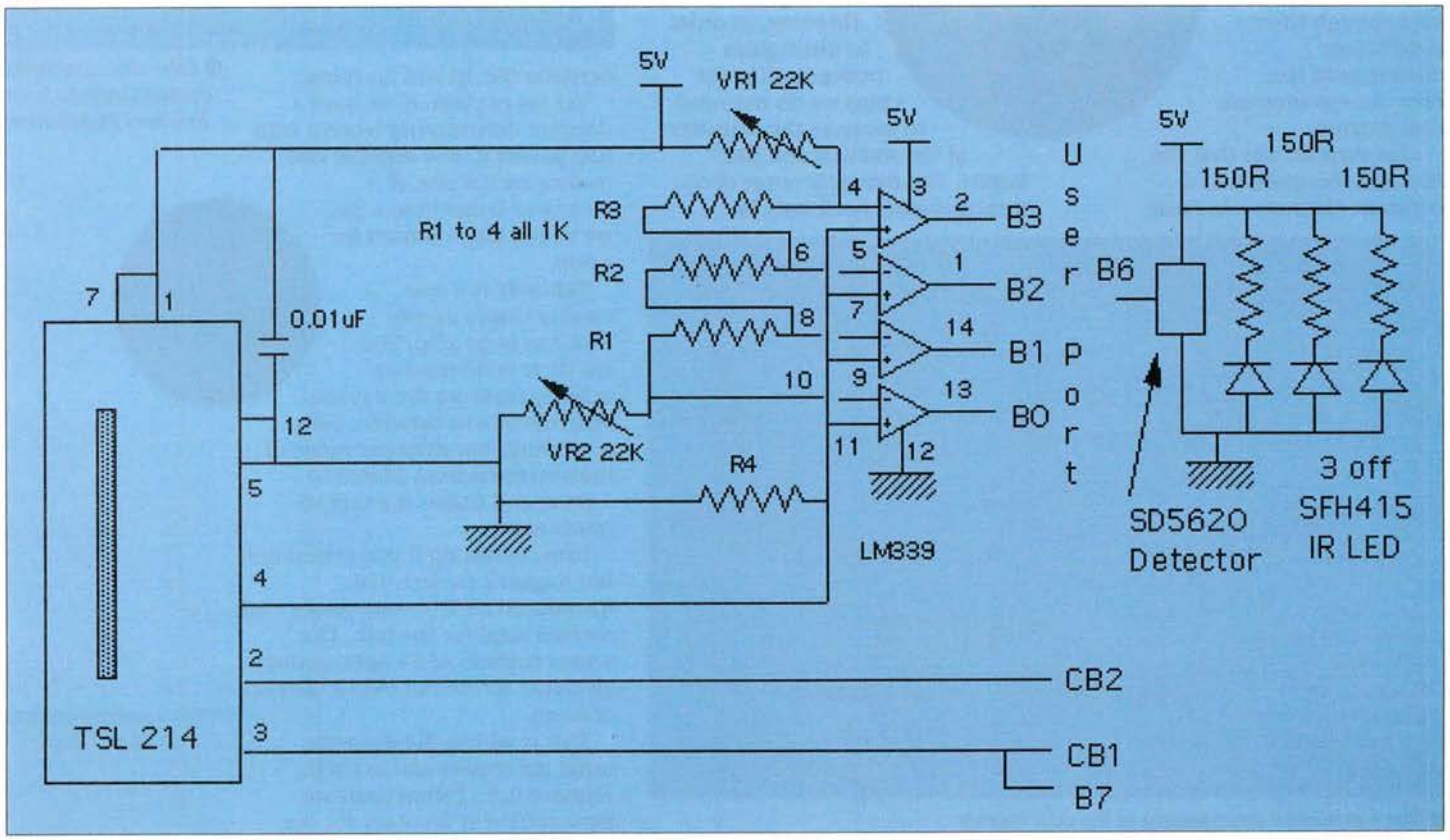
To prevent this happening the whole arrangement had to be tilted back about 10 degrees, and the central piece of perspex was chamfered.

The final problem was that in order to read the CCD sensors, you needed quite a lot of processing power. Also, when they had not been read for some time it took a few reads to flush the excess charge out of the device.

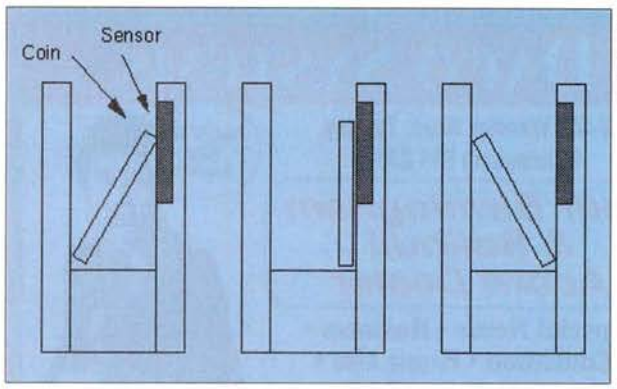
Therefore, the coin detector needed to be not directly under the row of sensors, but just before them. This was so that the software had time to react to the presence of the coin and start reading the sensors as the maximum number were covered.

As this detector is used to tell the software to stop reading the sensors, it still had to be covered as the diameter of the coin passed over the active area. Therefore I found that the coin detector had to be slightly up hill of the sensor.

The electrical circuit figure is basically the same as the original August '93 article, with the addition of the coin detector and the LEDs. It's true that in this project you don't need four comparators giving you a measure of five different light levels, you just need one. However, as comparators come four in a package you get them



● *Coin Counter Sensor Interface Circuit*



● *An exaggerated view of the different ways a coin can lie*

anyway, so you might as well use them.

This project plugs into the User Port and for once this is about the only place it could go. This is because the CCD array needs fast access and clock pulses which can't be provided by any of the other alternative interfaces.

It uses the timers in the User Port's VIA so you can't just use a bidirectional printer port. If you were willing to put more hardware into the CCD circuit, like an oscillator, counter and latch, then any interface could be used. However, this would be a project for another time.

I had the LEDs mounted on thick copper wire attached to a solder tag on the base plate so that I could adjust their position easily. If you wanted to make a more robust project these would have to be mounted on adjustable arms.

The trickiest part of this project is making the fine adjustments so I have provided a program *CoinTest* to help you. This waits for a coin to pass in front of the detector, then it reads the sensor until the coin uncovers the detector.

In the meantime, it keeps track of the largest number of sensor elements that were covered and displays this number. In addition there is a graphical output of the CCD sensors.

What you have to do is adjust things so that a 1p coin covers some sensors and a 2p coin leaves some uncovered. You can adjust the positions of the LEDs as well as the middle piece of perspex in the sandwich.

I found it best to have one LED pointing directly at the coin detector and the other two positioned at the top and bottom of the sensors strip.

You can also alter the sensitivity of the sensors by changing the integration time. This is done by altering the *SENS%* variable in the program – it has a REM next to the line so it should be no bother to find.

I found that the value I read for each coin changed slightly on different runs, but the spread was quite small. When you are getting consistent results make a table of measurements for each coin, then you can work out the threshold to use.

This can be done by adding half of the difference between the coin you want and the next biggest to the value of the coin you want. It is very likely that your numbers will be different from mine, but as long as you have the 1p and 2p within the dynamic range you will be alright. Remember that the 5p coin will cover none of the sensors and a 50p all of them. The program *CoinCount* will print out the value of the coins and add them up at the same time. There is a data statement giving the threshold values that you might have to change if your figures are different from mine.

There is also a learn mode where you are asked to roll down certain coins in turn to calibrate the program. However, this will only be needed if the mechanical configuration changes.

Pressing the space bar resets the total to zero, ready to roll more loot down. At the end of the shoot you can have the coins dropping into a large box, or you can extend the project.

I like to leave you with some extra work to do at the end of a project and this one could be quite interesting. How about having a sequence of solenoids opening traps so that the coin will be sorted into its appropriate pile?

That would take some thinking about and would make quite a good educational project. Until next month, I hope you are on a good roll.

Measurements and threshold values for each coin

Coin	Reading	Threshold
5p	1	Equal to 1
1p	8	Less than 13
20p	16	Less than 22
£1	28	Less than 36
10p	44	Less than 54
2p	64	Equal to 65
50p	65	

The diameter and difference in diameters of the coins

Coin	Diameter (mm)	Difference
5p	17.9	2.4
1p	20.3	1.0
20p	21.3	1.2
£1	22.5	2.0
10p	24.0	1.4
2p	25.9	4.1
50p	30.0	

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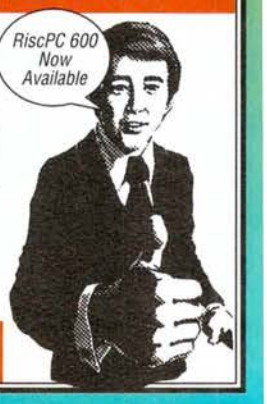

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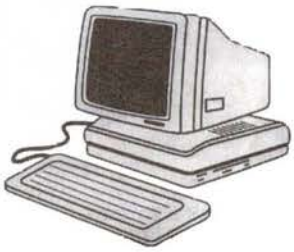

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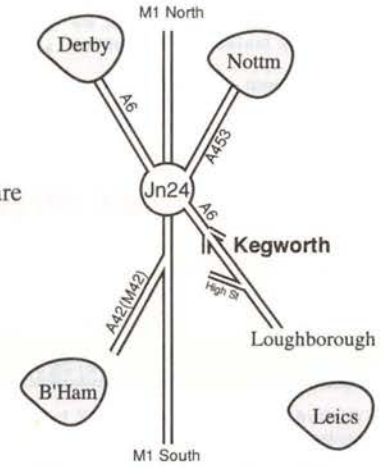

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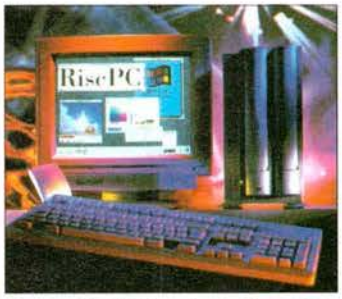
RiscPC



The new RiscPC from Acorn offers all the traditional strengths of RISC processing, and a great deal more, at a remarkably affordable price.
Based on the 30MHz ARM610 processor, the RiscPC simply leaves the competition standing.
It is the world's most cost-effective, efficient 32-bit RISC computer. The graphics on the RiscPC are astounding - 24-bit colour (with 2Mb VRAM fitted) and up to 1600 x 1200 pixels. The memory capacity starts at 2Mb and can be expanded to a massive 256Mb. A special slot for a 2nd processor allows you to add another ARM610 or any other processor, so allowing you easy low cost access to DOS and Windows applications.
The standard sound system offers 8 stereo channels, which can be upgraded with the optional 16-bit sound card. Networking options include Econet, Acorn Access and Industry standard Ethernet. There is also a choice of either 14" or 17" monitors.

Features of the RiscPC series:
- 30MHz ARM610 processor
- 2Mb RAM expandable to 256Mb
- 210Mb IDE hard disc
- up to 2Mb VRAM
- 8 channel stereo sound
- up to 1600 x 1200 dpi resolution
- 24-bit colour graphics
- 2nd processor slot
- RISC OS 3 v3.5
- up to 8 32-bit expansion slots
- 3.5" 1.6Mb floppy disc drive
- 5.25" drive bay (eg CD-ROM)
- choice of 14" or 17" monitor
- 12 months On-site warranty

• **RiscPC 600 2M HD210**	£1249
• **RiscPC 600 5M HD210**	£1399
• **RiscPC 600 9M HD420**	£1699

Upgrade Options

• upgrade from 4Mb to 8Mb RAM	£139
• upgrade from 8Mb to 16Mb RAM	£289
• upgrade to 1Mb VRAM	£119
• upgrade to 2Mb VRAM	£189
• upgrade to 486SX PC Card	£99
• upgrade to dual speed CD-ROM	£269
• upgrade to AKF85 monitor	£399

(above prices apply at time of purchase of RiscPC system)

Other RiscPC Add-Ons

• Acorn Access for RiscPC	£119
• Ethernet Network Interface	£99
• Econet Network Interface	£49
• Case Module upgrade	£99
• Dual speed CD-ROM Drive	£279
• 250Mb IDE Hard Drive upgrade	£179
• 340Mb IDE Hard Drive upgrade	£229
• 420Mb IDE Hard Drive upgrade	£299
• 486SX PC Card	£199

RiscPC Publishing System

A 5M HD210 system with 14" monitor, also includes Impression Publisher, Artworks and a choice of either BJ200 or BJC800 inkjet printers.

• RiscPC Publishing System - BJ200	£1699
• RiscPC Publishing System - BJC800	£1959

RiscPC Multimedia System

Based on the 5M HD210 system with 14" monitor, the RiscPC Multimedia System includes a dual speed CD-ROM drive, 16-bit SCSI card, stereo speakers. Hutchinson Multimedia Encyclopaedia. Really useful CD v2 and Acorn Videoclip CD.

• RiscPC 5M Multimedia System	£1649
• RiscPC 9M Multimedia System	£1949

FREE OFFERS

Purchase any RiscPC this month and we will include the following FREE with every order.

• RiscPC 2M HD210 systems	upgrade to 4Mb RAM
• RiscPC 5M HD210 systems	upgrade to 2Mb VRAM
• RiscPC 9M HD210 systems	upgrade to 2Mb VRAM

32-bit RISC Systems

• A3010 Action Pack (no monitor)	£329
• A3010 Learning Curve	£589
• A3020 2M FD System	£669
• A3020 2M HD80 System	£799
• A4000 2M HD105 System	£839
• A4 Notebook 4M HD80	£1629
• A5000 2M HD80 with AKF50	£1059
• A5000 4M HD210 with AKF50	£1219

Options (add to the above prices)

• AKF52 Med Res 14" Monitor	£40
• AKF50 High Res 14" Monitor	£75
• Learning Curve Pack	£39
• Home Office Pack	£79

FREE upgrade to 4Mb RAM on every A3020 and A4000 purchased this month

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• Pocket Book 256K computer	£169
• Pocket Book Class Pack	£1699
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• MAC Link	£65
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Archimedes IDE Hard Disc Upgrades

The Watford IDE interface allows IDE hard disc drives to be connected to an Archimedes computer. Speeds in excess of SCSI, but at a fraction of the cost.

Features include:
- Fast 16-bit interface (8-bit on A3000)
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- Power save mode on supported drives
- Supports 2 drives per interface
- Up to 4 drives attached to a machine
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- Conforms with Acorn IDE specification

All kits are supplied with interface (except A3020 upgrade), connecting cables, fixing screws and comprehensive instructions.

A300/A400 Internal IDE Drives

Part No.	Capacity	Access Time	Price
ADA 0550	80Mb	18mS	£169
ADA 2000	170Mb	13mS	£199
ADA 2010	250Mb	13mS	£239
ADA 0580	340Mb	16mS	£359
ADA 2030	420Mb	13mS	£469

A3000 Internal IDE Drives

Part No.	Capacity	Access Time	Price
ADA 0750	60Mb	19mS	£159
ADA 0720	80Mb	19mS	£199
ADA 0730	120Mb	16mS	£239
ADA 1070	200Mb	13mS	£389
ADA 2090	340Mb	13mS	£509

A5000 Internal IDE Drives

Part No.	Capacity	Access Time	Price
ADA 2040	170Mb	13mS	£179
ADA 2050	250Mb	13mS	£199
ADA 0880	340Mb	16mS	£239
ADA 2060	420Mb	13mS	£309

A300/400 IDE Hard Cards

Part No.	Capacity	Access Time	Price
ADA 0890	60Mb	19mS	£149
ADA 0670	80Mb	19mS	£189
ADA 0680	120Mb	16mS	£229
ADA 1070	200Mb	13mS	£379
ADA 2090	340Mb	13mS	£499

A3000 External IDE Drives

Part No.	Capacity	Access Time	Price
ADA 1020	80Mb	18mS	£229
ADA 2070	170Mb	13mS	£289
ADA 2080	250Mb	13mS	£339
ADA 2170	340Mb	16mS	£409
ADA 2180	420Mb	13mS	£419

A3020 Internal IDE Drives

Part No.	Capacity	Access Time	Price
ADA 2120	60Mb	19mS	£139
ADA 2130	80Mb	19mS	£179
ADA 2140	120Mb	16mS	£219
ADA 2150	200Mb	13mS	£359
ADA 2160	340Mb	13mS	£479

Accessories

• A5000 2nd drive accessory kit	£10
• External Case & PSU for HDD	£49
• 16-bit IDE Interface - A300/A400	£59
• IDE ROM Upgrade to v2.10	£16
• A300 Podule case	£10
• 8-bit IDE Interface - A3000 internal	£69

ARM3 Turbo Card

Using the latest surface mount technology on a high quality 4 layer PCB, the ARM3 Turbo Card will increase the speed of your A300, A400 or A3000 computer by up to 6 times.
The upgrade can be fitted by the user in A300 and A400 machines, but for owners of the A3000 we can collect, fit and deliver your computer back for an additional £24.
Owners of A300 and old A440 models will need a MEMC1A upgrade to use the ARM3.

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£89

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RISC OS 3.1 Upgrades

• RISC OS 3.1 Single User upgrade	£74
• RISC OS 3.1 Bulk Software upgrade	£319
• RISC OS 3.1 Hardware upgrade	£24

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If you need a 256 greyscale handscanner for your Archimedes or A3000 (external), then look no further.
Scan256 gives you up to 256 grey levels at a maximum resolution of 400dpi and is supplied with state-of-the-art software. This makes it the only sensible scanning and image processing solution for the Acorn 32-bit machines.
The highly advanced software supplied with the scanner offers you many different image processing options, such as dithering, image enhancement, edge detection, brightness and contrast controls, plus many more.

Features include:
- Multiple copies of an image in memory at once
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- Convolution digital filtering with over 100 filters
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• **Scan256 for A300/A400/A5000**	£155
• **Scan256 for A3000 external**	£175

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- A3000 User Port/MIDI card £44
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- Archi Analogue/User card £49

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- 16-bit SCSI card £149
- 16-bit SCSI card - 16Kb cache £169
- 16-bit SCSI card – Acorn £249
- ST506 Hard Disc podule £49
- 16-bit IDE interface - A300/A400 £59
- 8-bit IDE interface - A3000 internal £89

Ultimate Expansion

- Ultimate Expansion – A5000 £39
- Ultimate Expansion – A3000 £39
- Ultimate Expansion – A3010 £41
- Ultimate Expansion – A3020 £38
- SCSI uPodule £69
- Vision Digitiser uPodule £99
- Analogue uPodule £29
- Serial Port uPodule £49
- MIDI uPodule £49
- Scanlight 256 uPodule £229
- PSU Kit for Ultimate Exp. £30

(please call for pricing of above cards with IDE hard drives fitted)

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- Colour Card Gold £239
- Chroma 500 Genlock card £419
- Chroma 150 PAL Encoder £169
- Chroma Genlock card £209
- Hawk V9 MKII Digitiser £189
- Eagle M2 Multimedia card £319
- Vision Colour Digitiser £99
- HiVision Colour Digitiser £149

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- Spectra Colour Handscanner £549
- Scanlight 256 – A300/400 £188
- Scanlight 256 – A3000 £198
- Scanlight Professional £549
- Scanlight Video 256 £199

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- Econet Module – A300/400 £49
- Econet Module – A3020 £49
- Econet Module – A4 £49
- Econet Interface – RiscPC £49
- Ethernet III card – A5000 £149
- Ethernet interface – RiscPC £99
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- Acorn Access – A3020 £145
- Acorn Access – A5000 £145
- Acorn Access – RiscPC £119
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- EtherLAN Card – A3020 (BNC/TP) £148
- EtherLAN Card – A5000 (BNC/TP) £131
- EtherLAN Card – RiscPC (BNC/TP) £113
- 12 port UTP Ethernet Hub £379

Ethernet Cabling

Length	Thinnet	Twisted Pair
1m	£2.50	£2.00
3m	£4.50	£2.75
5m	£6.50	£3.25
10m	£9.50	£5.25

Miscellaneous

- Floating Point Accelerator – A5000 £99
- 386 1Mb PC Card – A3020 £225
- 486 4Mb PC Card – A3020 £420
- MIDI Expansion card £85
- MEMC1A Upgrade £25
- 4 Podule Backplane £22
- Fan for Backplane £7
- Arc to BBC Serial Link £16
- Microlin FX Modem/Software £199
- Archi 906 Tablet (OS 2 only) £105
- Archi 1212 Tablet (OS 2 only) £199
- A3000 Serial Upgrade £19

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300 Series - low cost drive

- 300 CD-ROM Drive/Interface £339
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- 300 SLCD Interface only £89

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- 600 CD-ROM Drive/Interface £509
- 600 CD-ROM Pack 3 £594
- 600 CD-ROM Pack 4 £680

(CD-ROM Packs include Drive, Interface Cables, Stereo Speakers and some CDs)

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A new range of SCSI CD-ROM drives which accept 6 discs at the same time.

- DRM602X Dual Speed CD drive £499
- DRM604X Quad Speed CD drive £999

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- Multimedia Expansion £485
- Multimedia Expansion – 16 bit £585
- Multimedia Expansion – 8 bit £565

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A dual speed CD-ROM drive supplied complete with interface.

- Ultimate CD-ROM for A300/A400 £289
- Ultimate CD-ROM for A3000 £289
- Ultimate CD-ROM for Ultimate Exp. £289

Aries CD-ROM Upgrade for RiscPC

The ideal CD-ROM drive for the RiscPC. The drive is available with or without 16-bit SCSI card, and can be installed in a matter of minutes.

- Aries CD-ROM Upgrade for RiscPC £275
- Aries CD-ROM drive only £149

CD ROM Software

Artworks	£129
Artworks Clip Art	£18
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Castles	£40
Countries of the World	£40
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Really Useful CD v2	£47
Times & Sunday Times	£195
Tekkie CD	£99
Pro Artisan v2	£149

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- A310 to 4Mb RAM £149
- A3000 to 2Mb RAM £49
- A3000 to 4Mb RAM £119
- A3010 to 2Mb RAM £49
- A3010 to 4 Mb RAM £135
- A3020/A4000 to 4Mb RAM £79
- A410/1 to 2Mb RAM £40
- A410/1 to 4Mb RAM £80
- A420/1 to 4Mb RAM £120
- A540 additional 4Mb RAM £249
- A5000 to 4Mb RAM £79
- A5000 2Mb to 8Mb RAM £349
- A5000 4Mb to 8Mb RAM £359
- RiscPC additional 2Mb RAM £85
- RiscPC additional 4Mb RAM £149
- RiscPC additional 8Mb RAM £299

(A310 upgrades are dealer fit only – we will collect, fit and deliver computer back for £25)

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Print at high speed up to 600dpi resolution with Computer Concepts' LaserDirect printers.

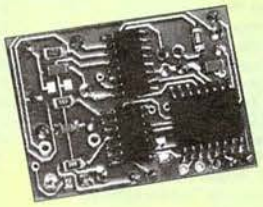
- LaserDirect HiRes 4ppm £799
- LaserDirect HiRes 8ppm £1099
- LaserDirect card for LBP4+ £37

ArcLaser Printers

This range of direct-drive laser printers for the Archimedes gives excellent high speed printing. Models available range from 300dpi A4 size to 1200dpi A3 size.

- ArcLaser A4 1200dpi £985
- ArcLaser A3 1200dpi £4995

VIDC Enhancer



The Watford VIDC Enhancer for the Archimedes 300/400 and A3000 computers, caters for all types of Multiscan and VGA monitors.
A disc of utilities is supplied to allow you to define your own modes, and change existing ones. A desktop mode selector is also supplied.

- Multiscan VIDC Enhancer £15
- SuperVGA VIDC Enhancer £29
- 9 to 15 pin VGA Adaptor £9

Coming next month...
a revolution in scanning technology for your Archimedes or RiscPC computer

Archi Hand Scanner

Watford's MKII hand scanner for the Archimedes and A3000 has a maximum resolution of 400dpi, and a scan width of 4". The software is supplied on ROM, so there are no discs to load. Features include: cropping and scaling images, X flip and Y flip, and edge detection allows you to transform solid images into outlines.

- A300/400/A5000 version £89
- A3000 external version £109
- v1.10 ROM Upgrade £20

Upgrade to A4 Scanner
For existing users of the Watford MK2 Hand Scanner we can offer you an upgrade to the A4 Scanner for only £129

Archi A4 Scanner

The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, etc, with its detachable sheet feeder, or used as an A4 wide hand scanner. 64 grey levels are produced from the scanner at resolutions up to 400dpi. The software included on ROM allows you to adjust contrast and brightness of the scanned image, rotate, shear and cut out sections of the image. The scanner uses a green light source which gives improved contrast on images over conventional red light scanners.

- A4 Scanner for A300/A400 £199
- A4 Scanner for A3000 £229
- Sheet Feeder for A4 Scanner £69

PC Cards

Transform your Archimedes so you can run standard PC MS-DOS software and even Windows 3.1 with the Aleph One range of PC cards. Available as a bare card with either 486SLC25 or 486SLC2-50 (no memory) or with 4Mb RAM fitted. Prices do not include DOS or Windows, which we can supply for an extra £99, at time of purchase only.

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- 486 4Mb RAM - A3020/A4000 £420
- 486 25MHz 0Mb RAM - A5000 £369
- 486 25MHz 4Mb RAM - A5000 £529
- 486 50MHz 0Mb RAM - A5000 £449
- 486 50MHz 4Mb RAM - A5000 £609
- MS-DOS 6.2/Windows 3.1 Bundle £99
- 4Mb SIMM RAM for 0Mb cards £149

Archi Accessories

- A3000 Keyboard Dustcover £5
- A3000 Combined Dustcover £9
- A3010 Keyboard Dustcover £5
- A300/400 Dustcover £9
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Now you can use your Archimedes computer as a fax machine. Prepare a fax, send it using the ArcFax software. Receiving a fax is simple - display on the screen or print out on any RISC OS printer.

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Archi Mk4 Mouse

The new Mk4 mouse for your Archimedes is the ideal replacement for your old worn out Acorn mouse. The sleek design makes the mouse a pleasure to handle, and it also looks nice on your desktop.

only £24

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- IOC I/O controller £39
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Archimedes Software

Desktop Publishing

- Impression Publisher £109

Impression Publisher

Impression Publisher is the latest version of the highly acclaimed document processing software for the Archimedes and RiscPC. Publisher can be your work processor. It is also excellent at handling large documents, even books. It's ideal for producing adverts, brochures and the most complex page layout tasks, and at a remarkable price.

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ProArt 24

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• Canon LBP-8 IIIR	8ppm	£1559
• Epson EPL-5200	6ppm	£480
• Epson EPL-5600	6ppm	£660
• Epson EPL-7500 PS	6ppm	£1135
• Fujitsu VM600	6ppm	£529
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• HP Laserjet 4 ML	4ppm	£745
• HP Laserjet 4P	4ppm	£716
• HP Laserjet 4MP	4ppm	£975
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• Panasonic KX-P4400	4ppm	£360
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• Panasonic KX-P5400	4ppm	£599
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*2 years on-site warranty

Laser RAM Upgrades

Type	1M	2M	4M	8M
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• Canon LBP-4i	£109	–	£279	–
• Canon LBP-8 IV	£119	–	£299	–
• EPL-4100/4300	£70	£110	£205	–
• EPL-5200/5800	£58	£115	£215	–
• Fujitsu VM600/VM4	£57	£85	£149	£299
• Fujitsu VM800	£115	–	–	–
• HP III/IIIP/IIID	£75	£115	£135	–
• HP II/IID	£75	£115	£135	–
• HP IIISI	£57	£85	£158	£299
• HP 4/4M/4P/4MP	£85	£85	£149	£299
• HP 4L/4ML	£75	–	–	–
• KX-P4410/4430	£129	£199	–	–
• KX-P4420/4450i	£75	£115	£135	–
• KX-P4400/5400	£89	£139	£229	–
• OKI OL400e	£89	£118	–	–
• Star LP-8	£138	£225	–	–
• Star LS-5	£75	–	–	–

Laser Consumables

Type	Toner	Drum	Dev
• Canon/Star 4s	£48	–	–
• Canon LBP-8 IV	£70	–	–
• Canon LBP-8 III	£52	–	–
• Canon LBP-4U	£52	–	–
• EPL-4100/4300	£83	£89	–
• EPL-5200	£85	–	–
• EPL-7500	£177	–	–
• Fujitsu VM600	£85	–	–
• Fujitsu VM800	£115	–	–
• Fujitsu VM4	£29	£149	£89
• HP III/IIID	£52	–	–
• HP IIIP/IIP	£48	–	–
• HP IIISi/4Si	£95	–	–
• HP 4/4M/4P/4MP	£70	–	–
• HP 4L/4ML	£45	–	–
• NEC 610	£85	–	–
• NEC S80/S62P	£89	–	–
• OKI OL-400/800	£19	£189	–
• OKI OL-400s	£17	£129	–
• KX-P4410/30	£27	£109	£109
• KX-P4420	£22	£80	£59
• KX-P4450/51/55	£19	£99	£79
• KX-P4400/5400	£32	£69	–
• Qume Crystalprint	£99	£189	–
• Star LS-5	£83	–	–

Laser Accessories

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• LaserJet IIIP Lower Paper Cassette	£115
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• Ozone filter for KX-P4450/4455	£20
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• Epson LX400	80col	£91
• Epson LX850+	80col	£134
• Epson LX1050	132col	£174
• Epson FX870	80col	£226
• Epson FX1170	132col	£284
• Epson DFX5000C	132col	£1095
• Pansonic KX-P1150	80col	£89
• Panasonic KX-P1695	132col	£287
• Star LC15	132col	£178
• Star LC100C	80col	£89
• Star ZA200	80col	£255
• Star ZA250	132col	£315

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• Citizen Swift 200 Colour	80col	£146
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• Citizen Swift 240 Colour	80col	£165
• Citizen Swift 24X	132col	£235
• Epson LQ100	80col	£118
• Epson LQ150 Colour	80col	£159
• Epson LQ570+	80col	£188
• Epson LQ870	80col	£353
• Epson LQ1070	132col	£283
• Epson LQ1170+	132col	£407
• Epson LQ2550	132col	£879
• NEC P20	80col	£134
• NEC P30	132col	£236
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• NEC P620	80col	£337
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• Panasonic KX-P1624	132col	£210
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• Star LC24-20 II	80col	£113
• Star LC24-15 II	132col	£235
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• Star LC24-100	80col	£95
• Star LC24-300C	80col	£178
• Star XB24-200C	80col	£315
• Star XB24-250C	132col	£385

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Type	Black	Colour
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• Canon BJ200/BJ230	£16	–
• Canon BJ300/BJ330	£11	–
• Canon BJC600	£6	£8
• Canon BJC800	£16	£22
• Citizen 120D+	£4	–
• Citizen Swift 200/240	£4	£13
• Citizen Swift 24X	£8	£18
• Epson LX400/LX850/FX870	£4	–
• Epson LX100	£4	–
• Epson LX1050/FX1170	£5	–
• Epson LQ100	£4	–
• Epson LQ150	£4	£12
• Epson LQ570/870	£5	–
• Epson LQ1070/1170	£8	–
• Epson LQ2550	£8	£16
• Epson SQ870/SQ1170	£23	–
• Epson Stylus 300	£10	–
• Epson Stylus 800/1000	£10	–
• Fujitsu DL1150/DL1250	£5	£7
• Fujitsu DL3600	£6	£12
• Fujitsu B100/B200	£14	–
• HP DeskJet Std Capacity	£13	£21
• HP DeskJet High Capacity	£30	–
• HP DeskJet 310	£13	£21
• HP DeskJet 1200	£22	£26
• HP PaintJet	£17	£27
• HP PaintJet XL300	£17	£19
• Kaga/Taxan KP810/815	£5	–
• NEC P88Q/P32Q	£8	–
• NEC P82/72/90	£8	£14
• Panasonic 1150/1170/1180	£8	–
• Panasonic 2180/2123/2124	£7	£15
• Panasonic 1824/2824	£8	–
• Star LC10/LC100	£5	£9
• Star LC200	£5	£12
• Star LC24-20/24-100/24-200	£5	£12
• Star LC24-30	£8	£12
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• Canon BJC800	132col	£1070
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• Epson Stylus 300	80col	£155
• Epson Stylus 800	80col	£177
• Epson Stylus 1000	132col	£340
• Epson SQ870	80col	£415
• Epson SQ1170	132col	£580
• Epson Stylus Colour	80col	£399
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• HP DeskJet 500C	80col	£247
• HP DeskJet 560C	80col	£373
• HP DeskJet 310	80col	£166
• HP DeskJet 310 & CSF	80col	£205
• HP DeskJet 1200C	80col	£1080
• HP DeskJet 1200C PS	80col	£1608
• HP PaintJet XL300+	132col	£1616
• HP PaintJet XL300 PS	132col	£2575
• HP DeskWriter 520 (Mac)	80col	£189
• HP DeskWriter 500C (Mac)	80col	£260
• HP DeskWriter 580C (Mac)	80col	£375
• Star SJ48	80col	£182
• Star SJ144	80col	£286

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• Canon BJ300	£88
• Canon BJ330	£92
• Citizen Swift 24/200/240	£75
• Epson LX400	£69
• Epson LQ570/LQ870	£47
• Epson LQ1070/LQ1170	£89
• HP DeskJet 310	£48
• NEC P20/P220	£59
• NEC P3Q/P32Q	£85
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• HP DeskJet Carry Case	£49
• HP DeskJet 310 Colour Kit	£28
• HP DeskJet 1200 Postscript Upgrade	£499
• HP DeskJet Prestige Elite Fonts	£55
• HP DeskJet Letter Gothic Fonts	£56
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Memories are made of this

Mike Cook enters the ring to answer the problems that have been plaguing you this month

AGENDA

- Sound and morse
- Spectrum emulation
- Using PC monitors
- Accessing graphics tablets
- Disk fault messages
- Old projects
- Adding capacitors
- Ram upgrades

Q I AM in a quandary, largely because of money but equally out of a degree of frustration in not knowing what to do next. I have an A5000 with a 40Mb hard drive and 2-4Mb ram upgrade. I have added a second 100Mb hard drive and now RISC OS 3.11.

I am using up 1376k in the module area and some of the graphics I have done on Artworks will not transfer from Artworks to Impression before shutting down Artworks, but then there is insufficient ram to print them.

The obvious solution is to buy 8Mb ram but, having said that, it means not only getting a 0147 for 228 replacement board which is not currently available but would require this being done by a dealer and the cost is high.

Can you suggest a way that I can free up as much memory as possible without having to rewrite the Boot file and do a hard reset? Is there not – or will there be in the future – any way that a segment of the hard drive can be used as ram, as I understand this is possible on some computer systems?

Justin Baker, Scarborough, North Yorkshire

A *You might have seen the Atomwide advert for an 8Mb upgrade for the A5000 for only £259 which does not require the machine to be sent away and would seem your best bet at present.*

You can try to chip away at your module area and delete the things you are not using, but the extra memory saving would be comparatively small.

One thing you could try is to hide various boot files inside different folders with a very minimum one on the top level. Then, when you know what sort of session you are going to have, you can open the appropriate folder.

The software solution of using part of the disk space as memory is called virtual memory and while there is no reason why it can't be implemented on the Archimedes, as far as I know no one has yet.

It is available on my Apple Mac. However, to get an extra 4Mb of memory you need 8Mb of disk space and you can only double the amount of ram you have. When it is in use the system slows down considerably, so I do not use it very much at all.

Dots and dashes

Q SEVERAL months ago I wrote a short program in BBC Basic to generate morse code. I have been using it to increase my reading speed and when I get to about 14 words per minute I'll take the Radio Amateurs morse test. My program uses the SOUND command with a duration value of D=2 which takes me nicely to about 11wpm.

Lower speeds are produced by increasing the time interval between each set of dots and dashes which make each character, and must remain constant. The problem arises because the use of a smaller value for D such as D=1 produces a speed of around 22wpm which is too fast even when slowed down.

Ideally I want to program to generate morse at about 14-16wpm which I could then slow down and gradually build up. If the minimum duration value was 1/40 instead of 1/20 I think 3/40 would do the trick. Is there a way of doing this?

My machine is a BBC B with an issue three board OS 1.20, Basic 1, 32k memory with a cassette storage system.

Eric Paul, Rudheath, Cheshire

A *There are two ways you can tackle this. First of all the RSGB – Radio Society of Great Britain – suggests in its booklet on learning Morse code that you don't slow down the length of the dots and dashes.*

In order to control the words per minute rate you should add extra time between the individual letters and keep the letters at a fast speed. The brain is good enough to cope with the pattern, it just needs extra time to decode the letter. This gap can easily be made with a simple delay loop.

The other solution is to abandon the use of the SOUND command. Instead, write a small machine code routine that toggles an output and so produces sound directly.

You can then connect this directly to an amplifier, back to the internal amplifier or a high impedance ear piece. As you are using a Model B you can use a single bit from the User Port.

Another solution would be to use the cassette relay. This could power an electronic bleeper or key an oscillator.

If you want to use an Archimedes and have no interface then you can use the pins on the printer port. See the July Body Building article on how to ➤

BBC lock out

Q UNTIL now I have always used my now very old BBC B and a 14in monitor. Like a fool, I was talked into buying a Notebook PC which I discovered has a Spanish keyboard and a 14in monitor which produces lovely colours.

The salesman/troubleshooter now tells me that I must not connect my Beeb to my new monitor as it would ruin the monitor.

My Beeb is good compared to the the complicated IBM which I still do not understand. I paid £1250 for my Notebook and would exchange it for an Archimedes anytime. Although having lived here for 10 years I have not seen an Arc.

J C Bird, Fuengirola, Spain

A *Technophobia strikes again. It would not ruin your monitor if you connected it up to your Model B, unfortunately it would not work either. From the specification information you sent, this is a multi-sync type capable of locking to a number of different frequencies.*

However, it can't lock on the 15kHZ horizontal frequency that the Model B produces. If you connect it up it might be able to lock on to every other line and produce a display of sorts, but I am not very hopeful that it would be usable. Nevertheless you can't do any harm in trying.

➤

drive the printer port directly from software.

Spectrum analysis

Q I AM trying to transfer computer games and programs stored on tape from the Spectrum to my Acorn A3010. My friend – who has a PC – has a full Spectrum emulator which allows him to play Spectrum tapes through his sampler or serial power. The emulator will then save them to disk or load them.

Having looked at the relative processor speeds of the three micros, I concluded that running the Spectrum emulator under DR-DOS 6 on the Acorn PC Emulator would provide an emulation at satisfactory speed. But there would be no sound and I still have the problem of how to load in the tapes.

I have the printer port sampler from Focus IT and am wondering if this would work with the PC Spectrum emulator running on the A3010 or if you or anyone else knows of a Spectrum emulator written for the Archimedes.

I have tried a few PD houses without luck and suspect that this is due to a general negative opinion of Spectrums and their usefulness.

M. Summers, Minsterworth, Gloucestershire

A *There is no Spectrum emulator for the Archimedes. There has been talk over the years of releasing one but one hasn't emerged. I find the thought of an Arc emulating a PC which emulates a Spectrum rather strange and very much doubt if it would work at acceptable speeds. However, there is no reason why an emulator should not be written to run in native mode.*

The tape interface, however, is another matter. Even with a sound digitiser attached you would not be able to read tapes. This is because a sound digitiser turns the input into a stream of numbers representing the instantaneous voltage of the sound signal.

What the software would then have to do is to decide if a one or zero were being produced, as well as emulating the serial to parallel converter and coping with the data it received.

I suspect this sort of signal processing is a bit beyond the power of even the RISC chip and you would need some sort of dedicated signal-processing microprocessor to help you along.

Maybe it can be done with the Risc PC sometime. Unfortunately I can't see it being a very attractive project for anyone to undertake.

You can write to Mike Cook c/o Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

He will answer any questions about difficulties you may be having with your machines, mainly those to do with hardware. If you want a personal reply ensure that you enclose an SAE with your letter.

Graphic tablets

Q I HAVE recently seen a graphics tablet being advertised in several PC magazines called Tabby which is £59.95 and available from Micrograf International in Watford.

It is connected via the serial port and has drivers for several computers – Atari ST, Amiga and PC – and I would like to know if it's possible to connect it to my A3010 and if so, how.

James Garrett, St George, Bristol

A *This company used to produce graphics tablets for the BBC computer and it sounds like this is a variation. If it is designed to plug into the serial port then you can certainly connect it up to your A3010. However, this is only half the battle as you now have to write some software to drive it.*

Many high-end graphics tablets have a processor built-in and simply send coordinates down the serial line. I suspect from the price that this one will have to be driven by the computer through the serial port in the same way as the user port was used in their earlier models.

What you need to find out from the manufacturers is what sort of signals it needs to drive the tablet. Maybe they can supply a sample program from some other machine.

Then you need to write a module that drives the serial port and sends the results to the operating system and tricks it into thinking that the mouse has been moved. It is not an easy thing to do, but it is possible. Best of luck.

Basic kits

Q I USED to buy Let's Compute until it stopped being published and primarily got it for the articles on learning Basic. I was looking through one of the back issues and saw the Gadget Shop. Would the packs mentioned still be available or would I have to buy the components separately?

Ben Preston, Evershot, Dorset

A *Yes, the packs are available although as time has passed both the address and prices have changed. Write with your specific requirements to: Musbury Consultants, 5 Helmshore Road, Haslingden, Rossendale, Lancs BB4 4BG.*

Faulty displays

Q I RECENTLY obtained a secondhand Archimedes A310 which unfortunately has an annoying display fault. For example, if I use Draw faint grey lines ripple up and down the screen and buzzing comes from the loudspeaker.

I assume that this is due to interference from the CPU. Would the replacement, or even addition, of further decoupling capacitors eliminate the problem and if so, where should such capacitors be positioned?

The field change order which involves soldering a capacitor across IC68 has already been performed. From inspection of the circuit board this only appears to reduce noise from the internal loudspeaker and not from the display.

Rowland Fraser, Edinburgh

A *What you need is the field change order no E011. This consists of adding two extra components. First of all remove the main logic board and find the VIDC chip – the largest chip close to the back of the board – close to this is resistor R67.*

Now get a 1N4148 diode and crop the wire so that it can be soldered in parallel or across this resistor. Make sure the cathode (band) of the diode is closer to the end of the board. Next, find a decoupling capacitor marked A close to the VIDC – this is close to Q12.

If you have the right equipment desolder it, if not cut it off. Replace it with a 22uF axial lead electrolytic capacitor working voltage 13 volts or higher.

You will need to get this the right way round. The +ve end should be closest to R68 and 69 and the -ve end closest to Q12. If you don't feel confident to tackle this then take it to a component level service dealer.

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End of the line

I HAVE just spent the last week recovering from the failure of my hard disk, although all credit goes to HCCS Associates who, as I have always found, were extremely prompt in replacing my failed item within three working days.

Anyway, the reason I write is that I did not purchase any form of hard drive back-up but used a simple method of my own to reconstruct my drive.

Instead of dumping everything on to floppy disk – it would have been too expensive to buy enough disks as well as laborious – I opened each directory and took a snapshot of the window using Paint.

These I stored on a couple of disks along with the various files I had written or modified. For example the initialisation file for Pipedream and my Boot file.

Since I have the original disks for all my purchased software I had the means to back up applications or games. I simply reloaded them from the original disks in the directories indicated by the window snapshots.

This was a little time consuming but I now have an almost perfect replica of the original structure without having to shell out for any expensive utilities.

Colin Edmunds, Southampton

This technique works fine if you keep your data files on a floppy disk in the first place. If not then the commercial back-up programs are necessary and life-saving. The same applies if you are doing development work and so on.

No more music

COMPUTER games can be a problem when it comes to music. It often reappears itself and there isn't an option in the game for peace and quiet.

Press F12 and the command line appears. Type *SPEAKER OFF* and press Return twice to return to the desktop. Now load the game for silent play. This works fine on most games but not on others.

Tim Dean, Winchester, Hants

New lamps for old

HAVING just acquired an elderly A5000, I find that I have many questions to ask. The machine is RISC OS 3.0, 2Mb ram, 80Mb IDE hard disk – it was 40Mb but I had a spare – plus Multiscan monitor. On booting, several Internal Address errors were reported and I found it enormously difficult to get the system to respond without these errors.

I have had experience of other platforms and set about a standard debugging strategy and eliminated all Boot files by renaming them to boot. This cured the problems.

I eventually tracked it down to the last few lines of every Boot file, they read similar to below when in Edit:

```
[0d]RMEnsure Extend 0RMRun ColourRM
[0d]
[0d]RMEnsure Extend 0RMRun MonitorR
Mlllly[0d]
```

The things that worried me were the *[0d]* and the *lll*y bits. But I found that once the above files were loaded they caused severe instability in the system. More files were found called CheckMod, MemRM, MonitorRM, FastMod, CodeRM and OSExtend. All files were 940 bytes long which to me is extremely suspicious. I wonder, could they be viruses?

On another note could you tell me the difference between RISC OS 3 and 3.1. Is it worth me spending £80 on an upgrade? My Acorn is mainly used for C and ARM applications/ leisure development plus a bit of DTP.

Finally can you tell me how you get those nice 3D effects around the windows I see in your magazine?

Gary Tomlinson, Dunscroft, Doncaster

You have the Extend virus which comes in a variety of guises, which you have found. It is vital that you get a copy of Killer, the address is on the cover disk. The main difference between RISC OS 3 and RISC OS 3.11 is that the former has bugs that the latter doesn't. In addition a lot of software fails on 3.

The price of upgrade may seem high – it is – but Acorn had it down at £20 for over a year, so there's no excuse for not having upgraded, the previous owner of your machine really should have done it.

The 3D effects are a product of NewLook which is a software add-on produced by Acorn recently. You can get a disk with it on from most suppliers or PD houses at a very low price.

Time to upgrade

MY TWO sons (11 and 13) have now outgrown the capabilities of our A3000 and we were advised by our local computer shop to upgrade it to RISC OS 3 and to 2 or 4Mb. But after a month they still haven't got the parts.

I see in your magazine that several shops offer these parts. Not having a lot of spare cash and getting a bit confused with computer shop talk I thought I would write to your first. So here goes:

- Is it worth upgrading this machine or buying a bigger one?
- 4Mb would probably be better than 2Mb, but would a hard disk be better than 4Mb?
- My eldest son has become interested in computer graphics at school, is there some good

Image enhancement

I OWN an Acorn A3010 with 2Mb of ram with a Canon BJ-10sx black and white printer. I use my computer for a lot of DTP work and as such use a lot of clip art and scanned photos. As good as the PD libraries and other companies are, I still find that I can't get all the pictures I would like – or need.

I think that a scanner would be a good investment but I have no idea which to choose – a hand or a flatbed – or which would be compatible with my machine. I have seen a lot of adverts for scanners which state they are not compatible with the A3010. Can you help? My budget is in the region of £200.

M. Chatterley, St Clement, Jersey

This is like the road directions that begin "I wouldn't start from here". The problem you're probably running into is that handheld scanners require complete expansion card interfaces which won't fit into an A3010.

If you really want a scanner you'll need a SCSI interface, then you could add something like the Computer Concepts ScanLight Professional.

software for our machine?

- What would be a good choice of colour printer in the not too dear range?

Thanks.

Mrs P. Freeman, Chalfont St Giles, Bucks

I think it's honest to say that the advantages of upgrading an existing machine, rather than buying a new one, have been swept away by the introduction of the Risc PC, since it can be expanded to meet your needs for a minimum of five years, probably more like seven or eight or more.

I would suggest buying the lowest spec machine (2Mb ram, 210Mb hard disk) but adding 2Mb of video ram immediately, as this gives you extremely high quality screen modes but leaves the spare Vram for use by applications.

There's a lot of good graphics software already and huge quantities about to be released for the new machines. Without knowing the exact requirements it's difficult to suggest any specific products.

Colour printers are a different kettle of beans: It must be an inkjet as these are the most cost-effective on ink – ribbon-based ones shouldn't be considered. The HP DeskJet 550C is good and the appropriate printer driver is available. The most important thing about colour printers is that the quality is mostly dependent on the paper.

Acorn vs Colton

Thank you for the excellent first review of the Risc PC. Like many others I look forward to owning one in the near future. I believe that with the right marketing by Acorn and *high-end/professional* dealers the future of Acorn could be very rosy.

But I have a question. Why is it that every time I open an Acorn magazine and third-party developers are asked for their reactions or comments everybody, bar one, always speaks favourably or at least with constructive criticism.

The odd one out is Mark Colton. His comments are almost always negative and, in my opinion, unhelpful. The Risc PC does everything a PowerMac can do (almost!) at a much lower cost and without the built-in obsolescence of other platforms.

I suggest to Mr Colton that if he cannot find anything good to say about the Acorn platform – at least in public – then he should take his company out of the Acorn market and move to the kludge of Windows (after all he's already porting his products) and find out what it is to be a little tiddler in a damn big ocean.

If he did that it would be one less negative voice in the real world of RISC computing.

More power to Acorn and yourselves.

Keith Parker, Southall, Middx

Electron software

You may be interested to hear that all through the 10 year sleep of Mr. A. Davies of Irlam (*Letters, May 1994*) we have been supplying Electron and BBC Micro owners with software for their machines.

Ruth Sutcliffe, Vantage One Direct

Pregnant sheep

I must thank Mr Jepson (*Letters, May 1994*) for his informative and enlightening letter. How about a series on the EC common agricultural policy and its effect on sheep farming in the UK?

To calculate the lambing date using *Fireworkz* is simple: Enter the cell ID for the date the ewe was serviced and then +147 – the source date must be in the standard Fireworkz date format.

Graham Hayward, Barnstaple

Mr Jepson's letter produced a lot of answers, most of which were similar to this one although some included calculations from Basic and so on. As far as covering farming is concerned, we generally listen to the farming program on Radio 4 every morning.

Getting it out

Concerning Mark Rimmer's problem (*Letters, May 1994*) about getting an Acorn printout through a PC network to which his machine is not connected, I have the solution. I use an A3010 and often print draw files, Impression documents and so on through a PC connected to a laser printer at my College.

Set up the correct printer driver for the printer the output will be going to, but go into the *Connection* dialogue for that printer driver and set it to print to a file, hard disk, ram disk or whatever's appropriate. Print as normal.

Once you have the printout file put it onto a PC disk and take it to the PC. Get access to the DOS command line and enter this command:

```
COPY /B a:printout LPT1
```

The /B is to copy a binary file if you're not using Postscript, *printout* is the name of the file and *LPT1* is the usual name for the printer port, but use whatever's right in your case.

Stephen Potts, Stockport, Cheshire

Again we had lots of replies to Mark's problem most of which followed this example.

Really good but...

My parents were so taken aback by the quality of the music program Sibelius 7 that they bought an Acorn machine. Unfortunately, the cost of the software restricted them to an A3010 to which they added a Midi expansion card.

They now want to buy a hard disk but I can't see how it can be done. As far as I'm aware the Ultimate Expansion by HCCS is the only multi-interface adaptor and that would mean we'd have to buy another Midi interface.

I've also seen the SCSI adapter from Atomwide which fits in the printer port, could this be the answer? Ideally the solution would have to be as cheap as possible but how would the performance through the parallel port match up to an IDE drive?

Will there be more expandable but cheaper machines on the second-hand market now that the Risc PC has been launched?

Richard Blythe, Newquay, Cornwall

If you stay with the equipment you've already got then the Atomwide SCSI adapter is your only choice and the performance would not be too bad.

However, to use a program like Sibelius to the full you do need a better machine, although there are a large number of cheap secondhand A5000's now on the market. It's possible, though, to pick up brand new ones at a remarkably low price now.

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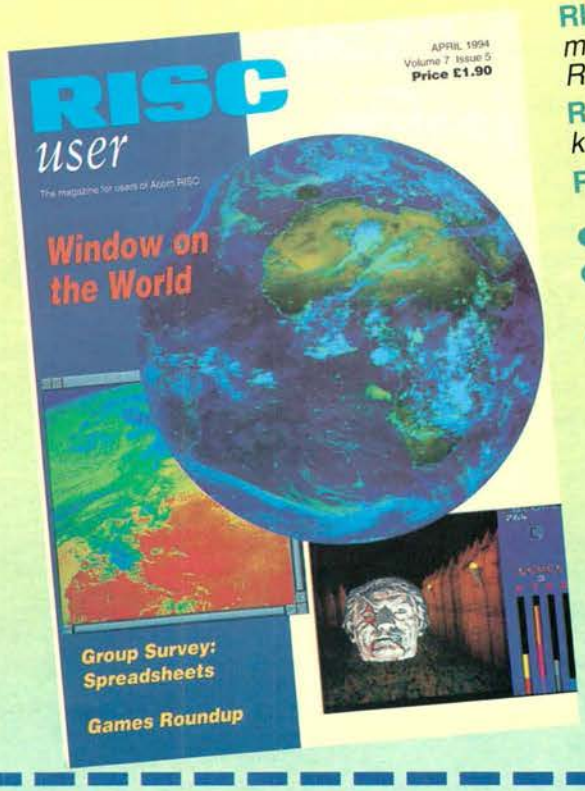

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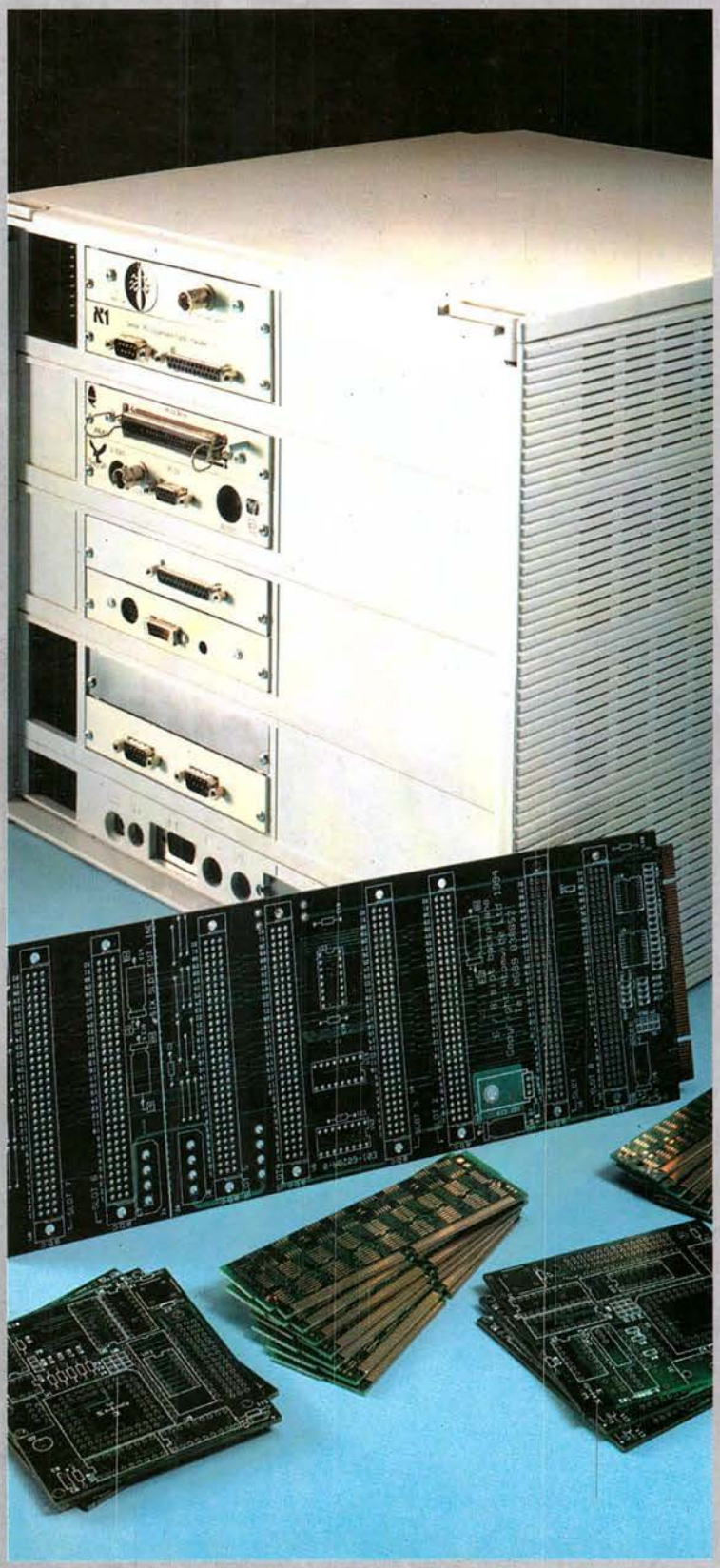

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